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THE NORWEGIAN POLAR EXPEDITION
1893–1896.

FARTHEST NORTH"

BY

DR. FRIDTJOF NANSEN

GOLD MEDALLIST, R.G.S.

VOL. II.

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Sailing Kayaks

FRIDTJOF NANSEN'S

"FARTHEST NORTH"

BEING THE RECORD OF A VOYAGE OF EXPLORATION OF THE SHIP *FRAM* 1893-96 AND OF A FIFTEEN MONTHS' SLEIGH JOURNEY BY DR. NANSEN AND LIEUT. JOHANSEN WITH AN APPENDIX BY OTTO SVERDRUP CAPTAIN OF THE *FRAM*

ABOUT ONE HUNDRED AND TWENTY
FULL PAGE AND
NUMEROUS TEXT ILLUSTRATIONS
SIXTEEN COLOURED PLATES
IN FACSIMILE FROM
DR. NANSEN'S OWN SKETCHES
ETCHED PORTRAIT
PHOTOGRAVURES
AND MAPS

VOL. II.

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FARTHEST NORTH

VOLUME II.

CHAPTER I.

We Prepare for the Sledge Expedition.

Who are to be the two members of the expedition? Sverdrup and I have tested each other before at this sort of work, and we could manage very well; but we cannot both leave the *Fram;* that is perfectly clear without further argument. One of us must remain behind to take on himself the responsibility of bringing the others home in safety; but it is equally clear that one of us two must conduct the sledge expedition, as it is we who have the necessary experience. Sverdrup has a great desire to go; but I cannot think otherwise than that there is more risk in leaving the *Fram* than in remaining on board her. Consequently, if I were to let him go, I should be transferring to him the more dangerous task, while keeping the easier one to myself. If he perished, should I ever be able to forgive myself for letting him go, even if it was at his own desire? He is nine

years older than I am ; I should certainly feel it to be a very uncomfortable responsibility. And, as regards our comrades, which of us would it be most to their interest to keep on board ? I think they have confidence in both of us, and I think either of us would be able to take them home in safety, whether with or without the *Fram*. But the ship is his especial charge, while on me rests the conduct of the whole, and especially of the scientific investigations ; so that I ought to undertake the task in which important discoveries are to be made. Those who remain with the ship will be able, as aforesaid, to carry on the observations which are to be made on board. It is my duty, therefore, to go, and his to remain behind. He, too, thinks this reasonable.

I have chosen Johansen to be my companion, and he is in all respects well qualified for that work. He is an accomplished snow-shoer, and few can equal his powers of endurance—a fine fellow, physically and mentally. I have not yet asked him, but think of doing so soon, in order that he may be prepared betimes. Blessing and Hansen also would certainly be all eagerness to ac company me ; but Hansen must remain behind to take charge of the observations, and Blessing cannot desert his post as doctor. Several of the others, too, would do quite well, and would, I doubt not, be willing enough.

This expedition to the north, then, is provisionally decided on. I shall see what the winter will bring us. Light permitting, I should prefer to start in February.

HJALMAR JOHANSEN.

(From a photograph taken in December, 1893.)

"Sunday, November 18th. It seems as if I could not properly realise the idea that I am really to set out, and that in three months' time. Sometimes I delude myself with charming dreams of my return home after toil and victory, and then all is clear and bright. Then these are succeeded by thoughts of the uncertainty and deceptiveness of the future and what may be lurking in it, and my dreams fade away like the northern lights, pale and colourless.

"'Ihr naht euch wieder, schwankende Gestalten.'

"Ugh! These everlasting cold fits of doubt! Before every decisive resolution the dice of death must be thrown. Is there too much to venture, and too little to gain? There is more to be gained, at all events, than there is here. Then is it not my duty? Besides, there is only one to whom I am responsible, and she . . . . .? I shall come back, I know it. I have strength enough for the task. 'Be thou faithful unto death, and thou shalt inherit the crown of life.'

"We are oddly constructed machines. At one moment all resolution, at the next all doubt. . . To-day our intellect, our science, all our 'Leben und Treiben' seem but a pitiful Philistinism, not worth a pipe of tobacco; to-morrow we throw ourselves heart and soul into these very researches, consumed with a burning thirst to absorb everything into ourselves, longing to spy out fresh paths, and fretting impatiently at our

inability to solve the problem fully and completely. Then down we sink again in disgust at the worthlessness of it all.

"'As a grain of dust in the balance is the whole world; as a drop of morning dew that falls on the ground.' If man has two souls, which then is the right one?

"It is nothing new to suffer from the fact that our knowledge can be but fragmentary, that we can never fathom what lies behind. But suppose, now, that we could reckon it out, that the inmost secret of it all lay as clear and plain to us as a rule-of-three sum, should we be any the happier? Possibly just the reverse. Is it not in the struggle to attain knowledge that happiness consists? I am very ignorant, consequently the conditions of happiness are mine.

"Let me fill a soothing pipe and be happy.

"No, the pipe is not a success. Twist tobacco is not delicate enough for airy dreams. Let me get a cigar. Oh! if one had a real Havanna!

"H'm! as if dissatisfaction, longing, suffering, were not the very basis of life. Without privation there would be no struggle, and without struggle no life—that is as certain as that two and two make four. And now the struggle is to begin, it is looming yonder in the north. Oh! to drink delight of battle, in long, deep draughts. Battle means life, and behind it victory beckons us on.

"I close my eyes. I hear a voice singing to me:

"'In amongst the fragrant birch,
In amongst the flowers' perfume,
Deep into the pinewood's church.'"

"Monday, November 19th. Confounded affectation all this Weltschmerz; you have no right to be anything but a happy man. And if you feel out of spirits, it ought to cheer you up simply to go on deck and look at these seven puppies that come frisking and springing about you, and are ready to tear you to pieces in sheer enjoyment of life. Life is sunshine to them, though the sun has long since gone, and they live on deck beneath a tent, so that they cannot even see the stars. There is 'Kvik,' the mother of the family, among them, looking so plump and contented as she wags her tail. Have you not as much reason to be happy as they? Yet they too have their misfortunes. The afternoon of the day before yesterday, as I was sitting at work, I heard the mill going round and round, and Peter taking food to the puppies, which as usual had a bit of a fight over the meat pan; and it struck me that the axle of the mill, whirling unguarded on the deck, was an extremely dangerous affair for them. Ten minutes later I heard a dog howling, a more long-drawn, uncomfortable kind of howl than was usual when they were fighting; and at the same moment the mill slowed down. I rushed out. There I saw a puppy right in the axle,

whirling round with it and howling piteously, so that it cut one to the soul. Bentzen was hanging on to the brake rope, hauling at it with all his might and main; but still the mill went round. My first idea was to seize an axe that was lying there to put the dog out of its misery, its cries were so heartrending; but on second thoughts I hurried on to help Bentzen, and we got the mill stopped. At the same moment Mogstad also came up, and while we held the mill he managed to set the puppy free. Apparently there was still some life in it, and he set to work to rub it gently and coax it. The hair of its coat had somehow or other got frozen on to the smooth steel axle, and the poor beast had been swung round and bumped on the deck at every revolution of the wheel. At last it actually raised its head, and looked round in a dazed way. It had made a good many revolutions, so that it is no wonder if it found some difficulty in getting its bearings at first. Then it raised itself on its fore-paws, and I took it aft to the half-deck and stroked and patted it. Soon it got on all four legs again, and began shambling about, without knowing where it was going.

"'It is a good thing it was caught by the hair,' said Bentzen, 'I thought it was hanging fast by its tongue, as the other one did.' Only think of being fixed by the tongue to a revolving axle—the mere notion makes one shudder! I took the poor thing down into the saloon and did all I could for it. It soon got all right again, and began playing with its

companions as before. A strange life, to rummage about on deck in the dark and cold; but whenever one goes up with a lantern they come tearing round, stare at the light, and begin bounding and dancing and gambolling with each other round it, like children round a Christmas tree. This goes on day after day, and they have never seen anything else but this deck with a tarpaulin over it, not even the clear blue sky; and we men have never seen anything other than this earth!

"The last step over the bridge of resolution has now been taken. In the forenoon I explained the whole matter to Johansen in pretty much the same terms as I have used above; and then I expatiated on the difficulties that might occur, and laid strong emphasis on the dangers one must be prepared to encounter. It was a serious matter—a matter of life or death—this one must not conceal from oneself. He must think the thing well over before determining whether he would accompany me or not. If he was willing to come I should be glad to have him with me; but I would rather, I said, he should take a day or two to think it well over before he gave me his answer. He did not need any time for reflection, he said; he was quite willing to go. Sverdrup had long ago mentioned the possibility of such an expedition, and he had thought it well over, and made up his mind that if my choice should fall on him he would take it as a great favour to be permitted to accompany me.

'I don't know whether you'll be satisfied with this answer, or whether you would like me still to think it over; but I should certainly never change my mind.' 'No, if you have already thought seriously about it—thought what risks you expose yourself to—the chance, for instance, that neither of us may ever see the face of man again—and if you have reflected that even if we get through safe and sound we must necessarily face a great deal of hardship on an expedition like this—if you have made up your mind to all this, I don't insist on your reflecting any longer about it.' 'Yes, that I have.' 'Well, then, that is settled. To-morrow we shall begin our preparations for the trip. Hansen must see about appointing another meteorological assistant.'"

"Tuesday, November 20th. This evening I delivered an address to the whole ship's company, in which I announced the determination that had been arrived at, and explained to them the projected expedition. First of all I briefly went through the whole theory of our undertaking, and its history from the beginning, laying stress on the idea on which my plans had been built up, namely that a vessel which got frozen in north of Siberia must drift across the Polar Sea and out into the Atlantic, and must pass somewhere or other north of Franz Josef Land, and between it and the Pole. The object of the expedition was to accomplish this drift across the unknown sea, and to pursue investigations there. I pointed out to them that these investigations would be of equal

1. Scott-Hansen. 2. Johansen. 3. Nansen. 4. Pettersen. 5. Nordahl. 6. Amundsen. 7. Bentzen. 8. Juell. 9. Henriksen. 10. Mogstad. 11. Jacobsen. 12. Blessing. 13. Sverdrup.

AT THE SUPPER TABLE, 14 FEBRUARY, 1895.

(By Johan Nordhagen, from a photograph.)

importance whether the expedition actually passed across the Pole itself or at some distance from it. Judging from our experiences hitherto, we could not entertain any doubt that the expedition would solve the problem it had set before it; everything had up to the present gone according to our anticipations, and it was to be hoped and expected that this would continue to be the case for the remainder of the voyage. We had, therefore, every prospect of accomplishing the principal part of our task; but then the question arose whether more could not be accomplished; and thereupon I proceeded to explain, in much the same terms as I have used above, how this might be effected by an expedition northwards.

"I had the impression that everyone was deeply interested in the projected expedition, and that they all thought it most desirable that it should be attempted. The greatest objection, I think, they would have urged against it, had they been asked, would have been that they themselves could not take part in it. I impressed on them, however, that while it was unquestionably a fine thing to push on as far as possible towards the north, it was no whit less honourable an undertaking to bring the *Fram* safe and sound right through the Polar Sea, and out on the other side—or if not the *Fram*, at all events themselves, without any loss of life. This done, we might say, without fear of contradiction, that it was well done.

I think they all saw the force of this and were satisfied. So now the die is cast, and I must believe that this expedition will really take place."

So we set about our preparations for it in downright earnest. I have already mentioned that at the end of the summer I had begun to make a kayak for a single man, the frame of which was of bamboo carefully lashed together. It was rather slow work, and took several weeks, but it turned out both light and strong. When completed the frame-work weighed 16 lbs. It was afterwards covered with sail-cloth by Sverdrup and Blessing, when the whole boat weighed 30 lbs. After finishing this, I had entrusted Mogstad with the task of building a similar one. Johansen and I now set to work to make a cover for it. These kayaks were 3·70 metres (12 feet) long, about 0·7 metre (28 inches) wide in the middle, and one was 30 centims. (12 inches) and the other 38 centims. (15 inches) deep. This is considerably shorter and wider than an ordinary Eskimo kayak, and consequently these boats were not so light to propel through the water. But as they were chiefly intended for crossing over channels and open spaces in the ice, and coasting along possible land, speed was not of much importance. The great thing was that the boats should be strong and light, and should be able to carry, in addition to ourselves, provisions and equipments for a considerable time. If we had made them longer and narrower, besides being heavier they would

have been more exposed to injury in the course of transport over the uneven ice. As they were built, they proved admirably adapted for our purpose. When we loaded them with care, we could stow away in them provisions and equipment for three months at least for ourselves, besides a good deal of food for the dogs ; and we could, moreover, carry a dog or two on the deck. In other respects they were essentially like the Eskimo kayaks, full decked, save for an aperture in the middle for a man to sit in. This aperture was encircled by a wooden ring, after the Eskimo fashion, over which we could slip the lower part of our sealskin jackets, specially adjusted for this purpose, so that the junction between boat and cape was watertight. When these jackets were drawn tight round the wrists and face the sea might sweep right over us without a drop of water coming into the kayak. We had to provide ourselves with such boats in case of having to cross open stretches of sea on our way to Spitzbergen, or, if we chose the other route, between Franz Josef Land and Novaya Zemlya. Besides this aperture in the middle, there were small trap-doors fore and aft in the deck, to enable us to put our hands in and stow the provisions, and also get things out more readily, without having to take out all the freight through the middle aperture, in case what we wanted lay at either extremity. These trap-doors, however, could be closed so as to be quite watertight. To make the canvas quite impervious to water the best plan would have

been to have sized it, and then painted it externally with ordinary oil paint; but on the one hand it was very difficult to do this work in the extreme cold (in the hold the temperature was — 20° C. (— 4° F.)), and on the other hand I was afraid the paint might render the canvas too hard and brittle, and apt to have holes knocked in it during transport over the ice. Therefore I preferred to steep it in a mixture of paraffin and tallow, which added somewhat to the weight of the kayaks, so so that altogether they came to weigh about 36 lbs. apiece.

I had, moreover, some hand sledges made especially for this expedition; they were supple and strong, designed to withstand the severe tests to which an expedition with dogs and heavy freights over the uneven drift-ice would necessarily expose them. Two of these sledges were about the same length as the kayaks, that is, 12 feet. I also made several experiments with respect to the clothes we should wear, and was especially anxious to ascertain whether it would do to go in our thick wolf-skin garments, but always came to the conclusion that they were too warm. Thus, on November 29th, I write: "Took another walk northwards in my wolf-skin dress; but it is still too mild, — 35·2° F. (— 37·6° C.). I sweated like a horse, though I went fasting, and quite gently. It is rather heavy going now in the dark, when one cannot use snow-shoes. I wonder when it will be cold enough to use this dress."

On December 9th again, we went out on snow-shoes. "It was — 41° C. (— 41·8° F.). Went in wolf-skin dress, but the perspiration poured down our backs, enough to turn a mill. Too warm yet; goodness knows if it ever will be cold enough."

Of course, we made some experiments with the tent and with the cooking apparatus. On December 7th I write: "I pitched the silk tent we are going to take, and used our cooking apparatus in it. From repeated trials it appeared that from ice of — 35° C. (— 31° F.) we boiled 3 litres of water (5¼ pints), and at the same time melted 5 litres (8¾ pints), in an hour and a half, with a consumption of about 120 grammes of snowflake petroleum. Next day we boiled 2½ litres of water (over 4 pints), and melted 2½ litres, in one hour, with 100 grammes of snowflake petroleum. Yesterday we made about 2 litres of excellent oatmeal porridge, and at the same time got some half melted ice and a little water in little over half-an-hour, with 50 grammes of snowflake petroleum. Thus there will be no very great consumption of fuel in the day."

Then I made all kinds of calculations and computations in order to find out what would be the most advantageous kind of provisions for our expedition, it being of the greatest moment that the food both for dogs and men should be nutritious, and yet should not weigh more than was absolutely necessary. Later on, in the list of our equipments, I shall give the final

result of my deliberations on this matter. Besides all this, we had of course to consider and test the instruments to be taken with us, and to go into many other matters, which, though perhaps trifles in themselves, were yet absolutely necessary. It is on the felicitous combination of all these trifles, that ultimate success depends.

We two passed the greater portion of our time in these preparations, which also kept many of the others pretty busy during the winter. Mogstad, for instance, found steady employment in making sledges and fitting them with runners, etc. Sverdrup busied himself in making sleeping-bags and many other things. Juell was appointed dog-tailor, and when he was not busy in the galley, his time was devoted to taking the measurements of the dogs, making harness for them and testing it. Blessing too, fitted up for us a small, light medicine chest, containing selected drugs, bandages and such other things as might be of use. One man was constantly employed in copying out all our journals and scientific observations, etc., etc., on thin paper, in a contracted form, as I wanted, by way of making doubly sure of their preservation, to take a copy of them along with me. Hansen was occupied in preparing tabular forms necessary for our observations, curves of the movement of our chronometers, and other such things. Besides this, he was to make a complete chart of our voyage and drifting up to the present time.

I could not, however, make too great a claim on his

SCOTT-HANSEN'S OBSERVATORY.

valuable time, as it was necessary that he should continue his scientific observations without interruption. During this autumn he had greatly increased the comfort of his work, by building, along with Johansen, an observation-hut of snow, not unlike an Eskimo cabin. He found himself very much at his ease in it, with a petroleum lamp hanging from the roof, the light of which, being reflected by the white snow walls made quite a brilliant show. Here he could manipulate his instruments quietly and comfortably, undisturbed by the biting wind outside. He thought it quite warm there, too, when he could get the temperature up to something like 20° below freezing-point, so that he was able without much inconvenience to adjust his instruments with bare hands. Here he worked away indefatigably at his observations day after day, watching the often mysterious movements of the magnetic needle, which would sometimes give him no end of trouble. One day—it was November 24th—he came in to supper a little after 6 o'clock, quite alarmed, and said, "There has just been a singular inclination of the needle to 24°, and, remarkably enough, its northern extremity pointed to the east. I cannot remember ever having heard of such an inclination." He also had several others of about 15°. At the same time, through the opening into his observatory, he noticed that it was unusually light out of doors, and that not only the ship but the ice in the distance was as plainly visible as if it had been full moonlight. No aurora, however, could be

discerned through the thick clouds that covered the sky. It would appear, then, that this unusual inclination was in some way connected with the northern lights, though it was to the east and not to the west as usual. There could be no question of any movement of the floe on which we were lying; for everything had been perfectly still and quiet, and it is inconceivable that a disturbance which could cause such a remarkable oscillation of two points and back again in so short a space of time should not have been noticed and heard on board. This theory, therefore, is entirely excluded, and the whole matter seems to me, for the present, to be incomprehensible. Blessing and I at once went on deck to look at the sky. Certainly it was so light that we could see the lanes in the ice astern quite plainly; but there was nothing remarkable in that, it happened often enough.

"Friday, November 30th. I found a bear's track on the ice in front of our bow. The bear had come from the east, trotting very gently along the lane, on the newly frozen ice, but he must have been scared by something or other ahead of the vessel, as he had gone off again with long strides in the direction from which he had come. Strange that living creatures should be roaming about in this desert. What can they have to do here? If only one had such a stomach, one could at least stand a journey to the Pole and back without a meal. We shall probably have him back again soon, that is if I understand his nature aright, and then

perhaps he will come a little closer so that we may have a good look at him.*

"I paced the lane in front of the port bow. It was 348 paces across and maintained the same width for a considerable distance eastward, nor can it be much narrower for a great distance to the west. Now, when one bears in mind that the lane behind us is also of considerable width, it is rather consoling, after all, to think that the ice does permit of such large openings. There must be room enough to drift, if we only get wind—wind which will never come. On the whole, November has been an uncommonly wretched month. Driven back instead of forward—and yet this month was so good last year. But one can never rely on the seasons in this dreadful sea; taking all in all, perhaps, the winter will not be a bit better than the summer. Yet, it surely must improve—I cannot believe otherwise.

"The skies are clouded with a thick veil, through which the stars barely glisten. It is darker than usual; and in this eternal night we drift about, lonely and forsaken. 'For the whole world was filled with a shining light and undisturbed activity. Above those men alone brooded nought but depressing night—an image of that gloom which was soon to swallow them up.'

"This dark, deep, silent void is like the mysterious unfathomable well, into which you look for that

* He did not return after all.

something which you think must be there, only to meet the reflection of your own eyes. Ugh! the worn-out thoughts you can never get rid of, become in the end very wearisome company. Is there no means of fleeing from oneself, to grasp one single thought, only a single one, which lies outside oneself—is there no way except death? But death is certain; one day it will come, silent and majestic, it will open Nirvana's mighty portal, and we shall be swept away into the sea of eternity."

"Sunday, December 2nd. Sverdrup has now been ill for some days; during the last day or two he has been laid up in his berth, and is still there. I trust it is nothing serious; he himself thinks nothing of it, nevertheless it is very disquieting. Poor fellow, he lives entirely on oatmeal gruel. It is an intestinal catarrh, which he probably contracted through catching cold on the ice. I am afraid he has been rather careless in this respect. However, he is now improving, so that probably it will soon pass off; but it is a warning not to be over-confident. I went for a long walk this morning along the lane; it is quite a large one, extending a good way to the east, and being of considerable breadth at some points. It is only after walking for a while on the newly frozen ice, where walking is as easy and comfortable as on a well-trodden path, and then coming up to the snow-covered surface of the old ice again, that one thoroughly appreciates for the first time what it means to go without snow-shoes; the

difference is something marvellous. Even if I have not felt warm before, I break out into a perspiration after going a short distance over the rough ice. But what can one do? One cannot use snow-shoes; it is so dark that it is difficult enough to grope one's way about with ordinary boots, and even then one stumbles about, or slips down between great blocks of ice.

"I am now reading the various English stories of the polar expeditions during the Franklin period, and the search for him, and I must admit I am filled with admiration for these men and the amount of labour they expended. The English nation, truly, has cause to be proud of them. I remember reading these stories as a lad, and all my boyish fancies were strangely thrilled with longing for the scenery and the scenes which were displayed before me. I am reading them now as a man, after having had a little experience myself, and now, when my mind is uninfluenced by romance, I bow in admiration. There was grit in men like Parry, Franklin, James Ross, Richardson, and last, but not least, in M'Clintock—and, indeed, in all the rest. How well was their equipment thought out and arranged, with the means they had at their disposal. Truly, there is nothing new under the sun. Most of what I prided myself upon, and what I thought to be new, I find they had anticipated. M'Clintock used the same thing forty years ago. It was not their fault that they were born in a country where the use of snow-shoes is unknown, and

where snow is scarcely to be found throughout the whole winter. Nevertheless, despite the fact that they had to gain their experience of snow and snow travel during their sojourn up here—despite the fact that they were without snow-shoes and had to toil on as best they could with sledges with narrow runners over uneven snow-covered drift-ice—what distances did they not cover, what fatigues and trials did they not endure! No one has surpassed, and scarcely anyone approached them, unless, perhaps, the Russians on the Siberian coast; but then they have the great advantage of being natives of a country where snow is not uncommon."

"Friday, December 14th. Yesterday we held a great festivity in honour of the *Fram* as being the vessel which has attained the highest latitude (the day before yesterday we reached 82° 30′ N. lat.).

"The bill of fare at dinner was boiled mackerel, with parsley-butter sauce; pork cutlets and French peas; Norwegian wild strawberries, with rice and milk; crown malt extract; afterwards coffee. For supper:—New bread and currant cake, etc., etc. Later in the evening, a grand concert. Sweets and preserved pears were handed round. The culminating point of the entertainment was reached when a steaming hot and fragrant bowl of cherry-punch was carried in and served round among general hilarity. Our spirits were already very high, but this gave colour to the whole proceedings. The greatest puzzle to most of them was where the

ingredients for the punch, and more particularly the alcohol, had come from.*

"Then followed the toasts. First, a long and festive one to 'The *Fram*,' which had now shown what she was capable of. It ran somewhat to this effect: 'There were many wise men who shook their heads when we started, and sent us ominous farewell greetings. But their head-shakings would have been less vigorous, and their evil forebodings milder, if they could have seen us at this moment, drifting quietly and at our ease across the most northerly latitudes ever attained by any vessel, and still further northward. And the *Fram* is now not only the most northerly vessel on the globe, but has already passed over a large expanse of hitherto unknown regions, many degrees further north than have ever been reached in this ocean on this side of the Pole. But we hope she will not stop here; concealed behind the mist of the future there are many triumphs in store for us, triumphs which will dawn upon us one by one when their time has come. But we will not speak of this now, we will be content with what has actually been achieved; and I believe that the promise implied in Björnson's greeting to us and to the *Fram* when she was launched, has already been fulfilled, and with him we can exclaim :—

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* We had used for this purpose our pure grape-spirit.

"Hurrah for the ship and her voyage dread!
Where never before a keel has sped,
Where never before a name was spoken,
By Norway's name is the silence broken."

"'We could not help a peculiar feeling, almost akin to shame, when comparing the toil and privation, and frequently incredible sufferings, undergone by our predecessors in earlier expeditions, with the easy manner in which we are drifting across unknown expanses of our globe, larger than it has been the lot of most, if not all, of the former polar explorers to travel over at a stretch. Yes, truly, I think we have every reason to be satisfied with our voyage so far, and with the *Fram*, and I trust we shall be able to bring something back to Norway in return for the trust, the sympathy and the money which she has expended on us. But let us not on this account forget our predecessors; let us admire them for the way in which they struggled and endured, let us remember that it is only through their labours and achievements that the way has been prepared for the present voyage. It is thanks to their collective experience, that mankind has now got so far as to be able to cope, to some extent, with what has hitherto been his most dangerous and obstinate enemy in the Arctic regions, viz., the *drift-ice*, and to do so by the very simple expedient of going with it, and not against it, and allowing oneself to be hemmed in by it, not involuntarily but intentionally, and preparing for it

beforehand. On board this vessel we try to cull the fruits of all our predecessors' experiences; it has taken years to collect them; but I felt that with these I should be enabled to face any vicissitude of fate in unknown waters. I think we have been fortunate. I think we are all of the opinion that there is no imaginable difficulty or obstacle before us that we ought not to be able to overcome with the means and resources we possess on board, and be thus enabled to return at last to Norway safe and sound, with a rich harvest. Therefore let us drink a bumper to the *Fram!*'

"Next there followed some musical items and a performance by Lars the smith, who danced a *pas seul* to the great amusement of the company. Lars assured us that if he ever reached home again and were present at a gathering similar to those held at Christiania and Bergen on our departure, his legs should be taxed to their uttermost. This was followed by a toast to those at home who were waiting for us year after year, not knowing where to picture us in thought, who were vainly yearning for tidings of us, but whose faith in us and our voyage was still firm—to those who consented to our departure and who may well be said to have made the greatest sacrifice.

"The festivity continued with music and merriment throughout the evening, and our good humour was certainly not spoilt when our excellent doctor came forward with cigars, a commodity which is getting

highly valued up here, as unfortunately it is becoming very scarce. The only cloud in our existence is that Sverdrup has not yet quite recovered from his catarrh. He must keep strict diet, and this does not at all suit him, poor fellow; he is only allowed wheaten bread, milk, raw bear's flesh, and oatmeal porridge, whereas if he had his own way he would eat everything, including cake, preserves, and fruit. But he has returned to duty now, and has already been out for a turn on the ice.

"It was late at night when I retired to my cabin, but I was not yet in a fit mood to go to sleep. I felt I must go out and saunter in the wonderful moonlight. Around the moon there was, as usual, a large ring, and above it there was an arc which just touched it at the upper edge, but the two ends of which curved downwards instead of upwards. It looked as if it were part of a circle whose centre was situated far below the moon. At the lower edge of the ring there was a large mock moon, or rather a large luminous patch, which was most pronounced at the upper part where it touched the ring, and had a yellow upper edge from which it spread downwards in the form of a triangle. It looked as if it might be an arc of a circle on the lower side of, and in contact with the ring. Right across the moon there were drifting several luminous cirrhus streaks. The whole produced a fantastic effect."

"Saturday, December 22nd. The same south-easterly wind has turned into a regular storm, howling and rattling

cheerily through the rigging, and we are doubtless drifting northwards at a good rate. If I go outside the tent on deck, the wind whistles round my ears, and the snow beats into my face, and I am soon covered with it. From the snow-hut observatory, or even at a lesser distance, the *Fram* is invisible, and it is almost impossible to keep one's eyes open, owing to the blinding snow. I wonder whether we have not passed 83°? But I am afraid this joy will not be a lasting one, the barometer has fallen alarmingly, and the wind has generally been up to 13 or 14 metres (44 or 50 feet) per second. About half-past twelve last night the vessel suddenly received a strong pressure, rattling everything on board. I could feel the vibration under me for a long time afterwards while lying in my berth. Finally, I could hear the roaring and grating caused by the ice pressure. I told the watch to listen carefully, and ascertain where the pressure was, and to notice whether the floe on which we were lying was likely to crack, and whether any part of our equipment was in danger. He thought he could hear the noise of ice pressure both forward and aft, but it was not easy to distinguish it from the roar of the tempest in the rigging. To-day about 12.30 at noon the *Fram* received another violent shock, even stronger than that we had experienced during the night. There was another shake a little later; I suppose there has been a pressure aft, but could hear nothing for the storm. It is odd about this

pressure; one would think that the wind was the primary cause; but it recurs pretty regularly, notwithstanding the fact that the spring-tide has not yet set in; indeed, when it commenced a few days ago it was almost a neap-tide. In addition to the pressure of yesterday and last night, we had pressure on Thursday morning at half-past nine, and again at half-past eleven. It was so strong that Peter, who was at the sounding-hole, jumped up repeatedly, thinking that the ice would burst underneath him. It is very singular, we have been quiet for so long now that we feel almost nervous when the *Fram* receives these shocks; everything seems to tremble as if in a violent earthquake."

"Sunday, December 23rd. Wind still unchanged, and blowing equally fresh, up to 13 or 14 metres (44 or 47 feet). The snow is drifting and sweeping so that nothing can be distinguished; the darkness is intense. Abaft on the deck, there are deep mounds of snow lying round the wheel and the rails, so that when we go up on deck we get a genuine sample of an Arctic winter. The outlook is enough to make you shudder, and feel grateful that instead of having to turn out in such weather, you may dive back again into the tent, and down the companionway into your warm bunk; but soon, no doubt, Johansen and I will have to face it out, day and night, even in such weather as this, whether we like it or not. This morning, Pettersen, who has had charge of the dogs this week, came down to the saloon and

asked whether someone would come out with him on the ice with a rifle, as he was sure there was a bear. Peter and I went, but we could not find anything. The dogs left off barking when we arrived on the scene, and commenced to play with each other. But Pettersen was right in saying that it was 'horrid weather,' it was almost enough to take away one's breath to face the wind, and the drifting snow forced its way into the mouth and nostrils. The vessel could not be distinguished beyond a few paces, so that it was not advisable to go any distance away from her, and it was very difficult to walk, for what with snow-drifts and ice-mounds at one moment you stumbled against the frozen edge of a snow-drift, at another you tumbled into a hole. It was pitch dark all round. The barometer had been falling steadily and rapidly, but at last it has commenced to rise slightly. It now registers about 726 mm. (28·6 inches). The thermometer, as usual, is describing the inverse curve. In the afternoon it rose steadily until it registered — 21·3° C. (— 6° F.). Now it appears to be falling again a little, but the wind still keeps exactly in the same quarter. It has surely shifted us by now a good way to the north, well beyond the 83rd degree. It is quite pleasant to hear the wind whistling and rattling in the rigging overhead. Alas! we know that all terrestrial bliss is short-lived.

"About midnight the mate, who has the watch, comes down and reports that the ice has cracked just beyond

the thermometer house, between it and the sounding hole. This is the same crack that we had in the summer, and it has now burst open again, and probably the whole floe in which we are lying is split from the lane ahead to the lane astern of us. The thermograph and other instruments are being brought on board, so that we may run no risk of losing them in the event of pressure of ice. But otherwise there is scarcely anything that could be endangered. The sounding apparatus is at some distance from the open channel, on the other side. The only thing left there is the shears with the iron block standing over the hole."

"Thursday, December 27th. Christmas has come round again, and we are still so far from home. How dismal it all is! Nevertheless I am not melancholy. I might rather say I am glad; I feel as if awaiting something great which lies hidden in the future. After long hours of uncertainty I can now discern the end of this dark night; I have no doubt all will turn out successfully, that the voyage is not in vain and the time not wasted, and that our hopes will be realised. An explorer's lot is, perhaps, hard and his life full of disappointments, as they all say; but it is also full of beautiful moments, moments when he beholds the triumphs of human faith and human will, when he catches sight of the haven of success and peace.

"I am in a singular frame of mind just now, in a state of sheer unrest. I have not felt inclined for

writing during the last few days; thoughts come and go, and carry me irresistibly ahead. I can scarcely make myself out; but who can fathom the depths of the human mind? The brain is a puzzling piece of mechanism: 'We are such stuff as dreams are made of.' Is it so? I almost believe it—a microcosm of eternity's infinite 'stuff that dreams are made of.'

"This is the second Christmas spent far away in the solitude of night, in the realm of death, farther north and deeper into the midst of it than any one has been before. There is something strange in the feeling; and then this, too, is our last Christmas on board the *Fram*. It makes one almost sad to think of it. The vessel is like a second home, and has become dear to us. Perhaps our comrades may spend another Christmas here, possibly several, without us who will go forth from them into the midst of the solitude. This Christmas passed off quietly and pleasantly, and everyone seems to be well content. By no means the least circumstance that added to our enjoyment was that the wind brought us the 83rd degree as a Christmas box. Our luck was, this time, more lasting than I had anticipated; the wind continued fresh on Monday and Tuesday, but little by little it lulled down and veered round to the north and north-east. Yesterday and to-day it has been in the north-west. Well, we must put up with it; one cannot help having a little contrary wind at times, and probably it will not last long.

"Christmas Eve was, of course, celebrated with great feasting. The table presented a truly imposing array of Christmas confectionery: 'Poor man's' pastry, 'Stag-horn' pastry, honey-cakes, macaroons, 'Sister' cake, and what not, besides sweets, and the like; many may have fared worse. Moreover, Blessing and I had worked during the day in the sweat of our brow and produced a 'Polar Champagne 83rd Degree,' which made a sensation, and which we two, at least, believed we had every reason to be proud of, being a product derived from the noble grape of the polar regions, viz., the cloudberry (*multer*). The others seemed to enjoy it too, and, of course, many toasts were drunk in this noble beverage. Quantities of illustrated books were then brought forth; there was music, and stories, and songs, and general merriment.

"On Christmas Day, of course, we had a special dinner. After dinner coffee and curaçao made here on board, and Nordahl then came forward with Russian cigarettes. At night a bowl of cloudberry punch was served out, which did not seem by any means unwelcome. Mogstad played the violin, and Pettersen was electrified thereby to such a degree that he sang and danced to us. He really exhibits considerable talent as a comedian, and has a decided bent towards the ballet. It is astonishing what versatility he displays: engineer, blacksmith, tinsmith, cook, master of ceremonies, comedian, dancer, and, last of all, he has

MUSICAL ENTERTAINMENT IN THE SALOON.

(From a photograph.)

come out in the capacity of a first-class barber and hair-dresser. There was a grand 'ball' at night; Mogstad had to play till the perspiration poured from him; Hansen and I had to figure as ladies. Pettersen was indefatigable. He faithfully and solemnly vowed that if he has a pair of boots to his feet when he gets home he will dance as long as the soles hold together.

"Day after day, as we progressed with a rattling wind, first from S.E., and later on E.S.E. and E., we felt more anxious to know how far we had got, but there had always been a snowstorm or a cloudy sky, so that we could not make any observations. We were all confident that we must have got a long way up north, but how far beyond the 83rd degree no one could tell. Suddenly Hansen was called on deck this afternoon by the news that the stars were visible overhead. All were on the tip-toe of expectation. But when he came down he had only observed one star, which, however, was so near the meridian that he could calculate that, at any rate, we were north of 83° 20′ N. lat., and this communication was received with shouts of joy. If we were not yet in the most northerly latitude ever reached by man, we were, at all events, not far from it. This was more than we had expected, and we were in high spirits. Yesterday, being 'the Second Christmas Day,' of course, both on this account and because it was Juell's birthday, we had a special dinner, with oxtail soup, pork cutlets, red whortleberry preserve, cauliflowers, fricandeau, potatoes,

preserved currants, also pastry and a wonderful iced almond cake, with the words 'Glaedelig Jul' (A Merry Christmas) on it, from Hansen, baker, Christiania, and then malt-extract. We cannot complain that we are faring badly here. About 4 o'clock this morning the vessel received a violent shock which made everything tremble, but no noise of ice-packing was to be heard. At about half-past five I heard, at intervals, the crackling and crunching of the pack-ice which was surging in the land ahead. At night similar noises were also heard; otherwise the ice was quiet, and the crack on the port-side has closed up tight again."

"Friday, December 28th. I went out in the morning to have a look at the crack on the port-side, which has now widened out so as to form an open lane. Of course, all the dogs followed me, and I had not got far when I saw a dark form disappear. This was 'Pan,' who rolled down the high steep edge of the ice and fell into the water. In vain he struggled to get out again; all around him there was nothing but snow slush which afforded no foot-hold. I could scarcely hear a sound of him, only just a faint whining now and then. I leant down over the edge in order to get near him, but it was too high, and I very nearly went after him head-first; all that I could get hold of was loose fragments of ice and lumps of snow. I called for a seal-hook, but before it was brought to me 'Pan' had scrambled out himself, and was leaping to

and fro on the floe with all his might to keep himself warm, followed by the other dogs who loudly barked and gambolled about with him, as though they wished to demonstrate their joy at his rescue. When he fell in they all rushed forward, looking at me and whining; they evidently felt sorry for him and wished me to help him. They said nothing, but just ran up and down along the edge until he got out. At another moment, perhaps, they may all unite in tearing him to pieces; such is canine and human nature. 'Pan' was allowed to dry himself in the saloon all the afternoon.

"A little before half-past nine to-night the vessel received a tremendous shock. I went out, but no noise of ice-packing could be heard. However, the wind howled so in the rigging that it was not easy to distinguish any other sound. At half-past ten another shock followed; later on, from time to time, vibrations were felt in the vessel, and towards half-past eleven the shocks became stronger. It was clear that the ice was packing at some place or other about us, and I was just on the point of going out when Mogstad came to announce that there was a very ugly pressure-ridge ahead. We went out with lanterns. Fifty-six paces from the bow there extended a perpendicular ridge stretching along the course of the lane, and there was a terrible pressure going on at the moment. It roared and crunched and crackled all along; then it abated a little and recurred at intervals, as though in a regular rhythm;

finally it passed over into a continuous roar. It seemed to be mostly newly-frozen ice from the channels which had formed this ridge ; but there were also some ponderous blocks of ice to be seen among it. It pressed slowly but surely forward towards the vessel ; the ice had given way before it to a considerable distance and was still being borne down little by little. The floe around us has cracked, so that the block of ice in which the vessel is embedded is smaller than it was. I should not like to have that pressure-ridge come in right under the nose of the *Fram*, as it might soon do some damage. Although there is hardly any prospect of its getting so far, nevertheless I have given orders to the watch to keep a sharp look out, and if it comes very near, or if the ice should crack under us, he is to call me. Probably the pressure will soon abate, as it has now kept up for several hours. At this moment (12·45 a.m.) there have just been some violent shocks, and above the howling of the wind in the rigging I can hear the roar of the ice-pressure as I lie in my berth."

CHAPTER II.

The New Year, 1895.

"Wednesday, January 2nd, 1895. Never before have I had such strange feelings at the commencement of the New Year. It cannot fail to bring some momentous events, and will possibly become one of the most remarkable years in my life, whether it leads me to success or to destruction. Years come and go unnoticed in this world of ice, and we have no more knowledge here of what these years have brought to humanity, than we know of what the future ones have in store. In this silent nature no events ever happen; all is shrouded in darkness; there is nothing in view save the twinkling stars, immeasurably far away in the freezing night, and the flickering sheen of the aurora borealis. I can just discern close by the vague outline of the *Fram*, dimly standing out in the desolate gloom, with her rigging showing dark against the host of stars. Like an infinitesimal speck, the vessel seems lost amidst the boundless expanse of this realm of death. Nevertheless under her deck there is a snug and cherished home for thirteen men, undaunted by the

majesty of this realm. In there, life is freely pulsating, while far away outside in the night there is nothing save death and silence, only broken now and then, at long intervals, by the violent pressure of the ice as it surges along in gigantic masses. It sounds most ominous in the great stillness, and one cannot help an uncanny feeling as if supernatural powers were at hand, the Jotuns and Rimturser (frost-giants) of the Arctic regions, with whom we may have to engage in deadly combat at any moment; but we are not afraid of them.

"I often think of Shakespeare's Viola who sat 'like patience on a monument.' Could we not pass as representatives of this marble patience, imprisoned here on the ice while the years roll by, awaiting our time? I should like to design such a monument. It should be a lonely man in shaggy wolf-skin clothing, all covered with hoar-frost, sitting on a mound of ice, and gazing out into the darkness across these boundless, ponderous masses of ice, awaiting the return of daylight and spring.

"The ice-pressure was not noticeable after 1 o'clock on Friday night, until it suddenly recommenced last night. First I heard a rumbling outside, and some snow fell down from the rigging upon the tent roof as I sat reading; I thought it sounded like packing in the ice, and just then the *Fram* received a violent shock such as she had not received since last winter. I was rocked backwards and forwards on the chest on which I was sitting. Finding that the trembling and rumbling continued, I

went out. There was a loud roar of ice packing to the west and north-west, which continued uniformly for a couple of hours or so. Is this the New Year's greeting from the ice?

"We spent New Year's Eve cosily, with a cloudberry punch bowl, pipes, and cigarettes; needless to say, there was an abundance of cakes and the like, and we spoke of the Old and the New Year, and days to come. Some selections were played on the organ and violin. Thus midnight arrived. Blessing produced from his apparently inexhaustible store a bottle of genuine 'linje akkevit' (Line eau de vie), and in this Norwegian liquor we drank the Old Year out and the New Year in. Of course there was many a thought that would obtrude itself, at the change of the year, being the second which we had seen on board the *Fram*, and also, in all probability, the last that we should all spend together. Naturally enough, one thanked one's comrades individually and collectively for all kindness and goodfellowship. Hardly one of us had thought, perhaps, that the time would pass so well up here. Sverdrup expressed the wish that the journey which Johansen and I were about to make in the coming year might be fortunate and bring success in all respects. And then we drank to the health and well-being in the coming year of those who were to remain behind on' board the *Fram*. It so happened that just now at the turn of the year we stood on the verge of an entirely new world. The wind

which whistled up in the rigging overhead was not only wafting us on to unknown regions, but also up into higher latitudes than any human foot had ever trod. We felt that this year, which was just commencing, would bring the culminating point of the expedition, when it would bear its richest fruits. Would that this year might prove a good year for those on board the *Fram*, that the *Fram* might go ahead, fulfilling her task as she has hitherto done, and in that case none of us could doubt that those on board would also prove equal to the work entrusted to them.

"New Year's day was ushered in with the same wind, the same stars and the same darkness as before. Even at noon one cannot see the slightest glimmer of twilight in the south. Yesterday I thought I could trace something of the kind; it extended like a faint gleam of light over the sky, but it was yellowish-white, and stretched too high up, hence I am rather inclined to think that it was an aurora borealis. Again to-day the sky looks lighter near the edge, but this can scarcely be anything except the gleam of the aurora borealis, which extends all round the sky, a little above the fog-banks on the horizon, and which is strongest at the edge. Exactly similar lights may be observed, at other times, in other parts of the horizon. The air was particularly clear yesterday, but the horizon is always somewhat foggy or hazy. During the night we had an uncommonly strong aurora borealis; wavy

streamers were darting in rapid twists over the southern sky, their rays reaching to the zenith, and beyond it there was to be seen for a time a band in the form of a gorgeous corona, casting a reflection like moonshine across the ice. The sky had lit up its torch in honour of the New Year—a fairy dance of darting streamers in the depth of night. I cannot help often thinking that this contrast might be taken as typical of the Northman's character and destiny. In the midst of this gloomy, silent nature, with all its numbing cold, we have all these shooting, glittering, quivering rays of light. Do they not typify our impetuous 'spring-dances,' our wild mountain melodies, the auroral gleams in our souls, the rushing, surging, spiritual forces behind the mantle of ice? There is dawning life in the slumbering night, if it could only reach beyond the icy desert, out over the world.

"Thus 1895 comes in :—

> "Turn, Fortune, turn thy wheel and lower the proud;
> Turn thy wild wheel thro' sunshine, storm, and cloud;
> Thy wheel and thee we neither love nor hate.
>
> Smile and we smile, the lords of many lands;
> Frown and we smile, the lords of our own hands;
> For man is man and master of his fate."

"Thursday, January 3rd. A day of unrest, a changeful life notwithstanding all its monotony. But yesterday we were full of plans for the future, and to-day

how easily might we have been left on the ice without a roof over our heads! At half-past four in the morning a fresh rush of ice set in in the lane aft, and at 5 it commenced in the lane on our port side. About 8 o'clock I awoke, and heard the crunching and crackling of the ice, as if ice-pressure were setting in. A slight trembling was felt throughout the *Fram*, and I heard the roar outside. When I came out I was not a little surprised to find a large pressure-ridge all along the channel on the port side, scarcely thirty paces from the *Fram;* the cracks on this side extended to quite eighteen paces from us. All loose articles that were lying on the ice on this side were stowed away on board; the boards and planks, which during the summer had supported the meteorological hut and the screen for the same, were chopped up, as we could not afford to lose any materials, but the line, which had been left out in the sounding hole with the bag-net attached to it, was caught in the pressure. Just after I had come on board again shortly before noon, the ice suddenly began to press on again. I went out to have a look; it was again in the lane on the port side; there was a strong pressure, and the ridge was gradually approaching. A little later on Sverdrup went up on deck, but soon after came below and told us that the ridge was quickly bearing down on us, and a few hands were required to come up and help to load the sledge with the sounding apparatus, and bring it round to the starboard side of the *Fram*, as the ice had cracked

close by it. The ridge began to come alarmingly near, and, should it be upon us before the *Fram* had broken loose from the ice, matters might become very unpleasant. The vessel had now a greater list to the port side than ever.

" During the afternoon various preparations were made to leave the ship if the worst should happen. All the sledges were placed ready on deck, and the kayaks were also made clear, 25 cases of dog-biscuits were deposited on the ice on the starboard side, and 19 cases of bread were brought up and placed forward ; also four drums holding altogether 22 gallons of petroleum were put on deck. Ten smaller-sized tins had previously been filled with 100 litres of snowflake oil, and various vessels containing gasoline were also standing on deck. As we were sitting at supper we again heard the same crunching and crackling noise in the ice as usual, coming nearer and nearer, and finally we heard a crash proceeding from right underneath where we sat. I rushed up. There was a pressure of ice in the lane a little way off, almost on our starboard beam. I went down again, and continued my meal. Peter, who had gone out on the ice, soon after came down and said, laughing as usual, that it was no wonder we heard some crackling, for the ice had cracked not a sledge-length away from the dog-biscuit cases, and the crack was extending abaft of the *Fram*. I went out and found the crack was a very considerable one. The dog-biscuit cases were now

shifted a little more forward for greater safety. We also found several minor cracks in the ice around the vessel. I then went down and had a pipe and a pleasant chat with Sverdrup in his cabin. After we had been sitting a good while the ice again began to crack and jam. I did not think that the noise was greater than usual, nevertheless I asked those in the saloon, who sat playing halma, whether there was anyone on deck; if not, would one of them be kind enough to go and see where the ice was packing. I heard hurried steps above; Nordahl came down and reported that it was on the port side, and that it would be best for us to be on deck. Peter and I jumped up and several followed. As I went down the ladder Peter called out to me from above: 'We must get the dogs out; see, there is water on the ice!' It was high time that we came; the water was rushing in and already stood high in the kennel. Peter waded into the water up to his knees and pushed the door open; most of the dogs rushed out and jumped about splashing in the water, but some, being frightened, had crept back into the innermost corner and had to be dragged out, although they stood in water reaching high up their legs. Poor brutes, it must have been miserable enough in all conscience to be shut up in such a place while the water was steadily rising about them, yet they are not more noisy than usual.

"The dogs having been put in safety, I walked

CAPTAIN SVERDRUP IN HIS CABIN.

(From a photograph.)

round the *Fram* to see what else had happened. The ice had cracked along her, to the fore, near the starboard bow; from this crack the water had poured aft along the port side, which was weighed down by the weight of the ridge steadily pressing on towards us. The crack has just passed under the middle of the portable forge, which was thus endangered, and it was therefore put on a sledge and removed to the great hummock on the starboard quarter. The pemmican, altogether eleven cases, the cases of dog-biscuits, and nineteen cases of bread, were conveyed to the same place. Thus we have now a complete depôt lying over there, and, I trust, in entire safety, the ice being so thick that it is not likely to give way. This has brought life into the lads; they have all turned out. We took out four more tin cans of petroleum to the hummock, and then proceeded to bring up from the hold and place on deck ready for removal, twenty-one cases of bread, and a supply of pemmican, chocolate, butter, 'vril-food,' soup, etc., calculated to last us 200 days. Also tents, cooking apparatus, and the like were got ready, so that now all is clear up there, and we may sleep securely; but it was past midnight before we had done. I still trust that it is all a false alarm, and that we shall have no occasion for these supplies now at any rate; nevertheless it is our duty to keep everything ready in case the unthinkable should happen. Moreover the watch has been enjoined to mind the dogs on the ice

and to keep a sharp look-out in case the ice should crack underneath our cases or the ice-pressure should recommence; if anything should happen we are to be called out at once, too early rather than too late. While I sit here and write I hear the crunching and crackling beginning again outside, so that there must still be a steady pressure on the ice. All are in the best spirits; it almost appears as if they looked upon this as a pleasant break in the monotony of our existence. Well, it is half-past one; I had better turn into my bunk; I am tired, and goodness knows how soon I may be called up.

"Friday, January 4th. The ice kept quiet during the night, but all day with some intervals it has been crackling and settling; and this evening there have been several fits of pressure, from 9 o'clock onwards. For a time it came on, sometimes rather lightly, at regular intervals, sometimes with a rush and a regular roar, then it subsided somewhat, and then it roared anew. Meanwhile the pressure-ridge towers higher and higher and bears right down upon us slowly, while the pressure comes on at intervals only, and more quickly when the onset continues for a time. One can actually see it creeping nearer and nearer, and now at one o'clock at night it is not many feet—scarcely five—away from the edge of the snowdrift on the port side near the gangway, and thence to the vessel is scarcely more than 10 feet, so that it will not be long now before it is upon us. Meanwhile the ice continues to split, and the solid mass in

which we are embedded grows less and less both to port and starboard. Several fissures extend right up to the *Fram*. As the ice sinks down under the weight of the ridge on the port side and the *Fram* lists more that way, more water rushes up over the new ice which has frozen on the water that rose yesterday. This is like dying by inches. Slowly but surely the baleful ridge advances, and it looks as if it meant going right over the rail; but if the *Fram* will only oblige by getting free of the ice, she will, I feel confident, extricate herself yet, even though matters look rather awkward at present. We shall probably have a hard time of it, however, before she can break loose, if she does not do so at once. I have been out and had a look at the ridge, and seen how surely it is advancing; I have looked at the fissures in the ice, and noted how they are forming and expanding round the vessel; I have listened to the ice crackling and crunching under foot; and I do not feel much disposed to turn into my berth before I see the *Fram* quite released. As I sit here now I hear the ice making a fresh assault, and roaring and packing outside, and I can tell that the ridge is coming nearer. This is an ice-pressure with a vengeance, and it seems as if it would never cease. I do not think there is anything more that we can do now. All is in readiness for leaving the vessel, if need be. To-day the clothing, etc., was taken out and placed ready for removal, in separate bags for each man.

"It is very strange; there is certainly a possibility that all our plans may be crossed by unforeseen events, although it is not very probable that this will happen. As yet, I feel no anxiety in that direction, only I should like to know whether we are really to take everything on to the ice or not. However, it is past 1 o'clock, and I think the most sensible thing to do would be to turn in and sleep. The watch has orders to call me when the hummock reaches the *Fram*. It is lucky it is moonlight now, so that we are able to see something of all this abomination.

"The day before yesterday we saw the moon for the first time just above the horizon, yesterday it was shining a little, and now we have it both day and night. A most favourable state of things. But it is nearly 2 o'clock, and I must go to sleep now. The pressure of the ice, I can hear, is stronger again."

"Saturday, January 5th. To-night everybody sleeps fully dressed, and with the most indispensable necessaries either by his side or secured to his body, ready to jump on the ice at the first warning. All other requisites such as provisions, clothing, sleeping-bags, etc., etc., have been brought out on the ice. We have been at work at this all day, and have got everything into perfect order, and are now quite ready to leave if necessary, which, however, I do not believe will be the case, though the ice-pressure has been as bad as it could be.

"I slept soundly, woke up only once and listened to

the crunching and jamming and grinding till I fell asleep again. I was called at 5.30 in the morning by Sverdrup, who told me that the hummock had now reached the *Fram*, and was bearing down on us violently, reaching as high as the rail; I was not left in doubt very long, as, hardly had I opened my eyes, when I heard a thundering and crashing outside in the ice, as if Doomsday had come. I jumped up. There was nothing left for it but to call all hands, to put all the remaining provisions on the ice, and then put all our furs and other equipment on deck, so that they could be thrown overboard at a moment's notice if necessary. Thus the day passed, but the ice kept quiet. Last of all, the petroleum launch, which was hanging in the davits on the port-side, was lowered, and was dragged towards the great hummock. At about 8 o'clock in the evening, when we thought the ice-pressure had subsided, it started thundering and crashing again worse than ever. I hurried up. Masses of snow and ice rushed on us, high above the rail amidships and over the tent. Peter, who also came up, seized a spade and rushed forward outside the awning as far as the forepart of the half-deck, and stood in the midst of the ice, digging away, and I followed to see how matters stood. I saw more than I cared to see; it was hopeless to fight that enemy with a spade. I called out to Peter to come back, and said: 'We had better see to getting everything out on to the ice.' Hardly had I spoken, when it pressed on again

with renewed strength, and thundered and crashed, and, as Peter said, laughing till he shook again: 'Nearly sent both me and the spade to the deuce.' I rushed back to the main-deck; on the way I met Mogstad, who hurried up, spade in hand, and sent him back. Running forward under the tent

"ALL HANDS ON DECK."

towards the ladder, I saw that the tent-roof was bent down under the weight of the masses of ice, which were rushing over it and crashing in over the rail and bulwarks to such an extent that I expected every moment to see the ice force its way through and block up the passage. When I got below, I called all hands on deck; but told

them when going up not to go out through the door on the port-side, but through the chart-room and out on the starboard side. In the first place, all the bags were to be brought up from the saloon, and then we were to take those lying on deck. I was afraid that if the door on the port-side were not kept closed, the ice might, if it suddenly burst through the bulwarks and tent, rush over the deck, and in through the door, fill the passage, and rush down the ladder, and thus imprison us like mice in a trap. True, the passage up from the engine-room had been cleared for this emergency, but this was a very narrow hole to get through with heavy bags, and no one could tell how long this hole would keep open, when the ice once attacked us in earnest. I ran up again to set free the dogs, which were shut up in 'Castle-garden'—an enclosure on the deck along the port bulwark. They whined and howled most dolefully under the tent, as the snow masses threatened at any moment to crush it and bury them alive. I cut away the fastening with a knife, pulled the door open, and out rushed most of them by the starboard gangway at full speed.*

"Meantime the hands started bringing up the bags. It was quite unnecessary to ask them to hurry up—the ice did that, thundering against the ship's sides in a

* The word *svalkelem*, which has throughout been translated "gangway," means rather a sort of port-hole. As the *svalkelem*, however, was the means of exit from and entrance to the ship, "gangway" seemed the most convenient expression for it.

way that seemed irresistible. It was a fearful hurly-burly in the darkness; for, to cap all, the mate had, in the hurry, let the lanterns go out. I had to go down again to get something on my feet; my Finland shoes were hanging up to dry in the galley. When I got there the ice was at its worst, and the half-deck beams were creaking overhead, so that I really thought they were all coming down.

"The saloon and the berths were soon cleared of bags and the deck as well, and we started taking them along the ice. The ice roared and crashed against the ship's side, so that we could hardly hear ourselves speak; but all went quickly and well, and before long everything was in safety.

"While we were dragging the bags along, the pressure and jamming of the ice had at last stopped, and all was quiet again as before.

"But, what a sight! The *Fram's* port-side was quite buried under the snow; all that could be seen was the top of the tent projecting. Had the petroleum launch been hanging in the davits, as it was a few hours previously, it would hardly have escaped destruction. The davits were quite buried in ice and snow. It is curious that both fire and water have been powerless against that boat, and it has now come outscathed from the ice, and lies there bottom upwards on the floe. She has had a stormy existence and continual mishaps; I wonder what is next in store for her?

"It was, I must admit, a most exciting scene, when it was at its worst, and we thought it was imperative to get the bags up from the saloon with all possible speed. Sverdrup now tells me that he was just about to have a bath, and was as naked as when he was born, when he heard me call all hands on deck. As this had not happened before, he understood there was something serious the matter, and he jumped into his clothes anyhow. Amundsen, apparently, also realised that something was amiss. He says he was the first who came up with his bag; he had not understood, or had forgotten in the confusion, the order about going out through the starboard door; he groped his way out on the port-side and fell in the dark over the edge of the half-deck. 'Well, that did not matter,' he said, 'he was quite used to that kind of thing;' but having pulled himself together after the fall, and as he was lying there on his back, he dared not move, for it seemed to him as if tent and all were coming down on him, and it thundered and crashed against the gunwale and the hull as if the last hour had come. It finally dawned on him why he ought to have gone out on the starboard and not on the port side.

"All that could possibly be thought to be of any use was taken out. The mate was seen dragging along a big bag of clothes, with a heavy bundle of cups fastened outside it. Later, he was stalking about with all sorts of things such as mittens, knives, cups, etc., fastened to

his clothes and dangling about him, so that the rattling noise could be heard afar off. He is himself to the last.

"In the evening the men all started eating their stock of cakes, sweetmeats, and such-like, smoked tobacco, and enjoyed themselves in the most animated fashion. They evidently thought it was uncertain when they should next have such a time on board the *Fram*, and therefore they thought it was best to avail themselves of the opportunity. We are now living in marching order on an empty ship.

"By way of precaution we have now burst open again the passage on the starboard side which was used as a library and had therefore been closed; and all doors are now kept always open, so that we can be sure of getting out, even if anything should give way. We do not want the ice-pressure to close the doors against us, by jamming the doorposts together. But she certainly is a strong ship. It is a mighty ridge that we have in our port side, and the masses of ice are tremendous. The ship is listing more than ever, nearly 7°; but since the last pressure she has righted herself a little again, so that she must surely have broken away from the ice, and begun to rise, and all danger is doubtless over. So, after all, it has been a case of 'Much ado about nothing.'"

"Sunday, January 6th. A quiet day; no jamming since last night. Most of the fellows slept well on into the morning. This afternoon all have been very busy digging

the *Fram* out of the ice again, and we have now got the rail clear right aft to the half-deck; but a tremendous mass had fallen over the tent. It was above the second ratline in the fore-shrouds, and fully 6 feet over the rail. It is a marvel that the tent stood it; but it was a very good thing that it did do so, for otherwise it is hard to say what might have become of many of the dogs. This afternoon Hansen took a meridian observation, which gave 83° 34′ N. lat. Hurrah! We are getting on well, northward; thirteen minutes since Monday, and the most northern latitude is now reached. It goes without saying that the occasion was duly celebrated with a bowl of punch, preserved fruits, cakes, and the doctor's cigars.

"Last night we were running with the bags for our lives; to-night we are drinking punch and feasting; such are, indeed, the vicissitudes of fate. All this roaring and crashing for the last few days has been, perhaps, a cannonade to celebrate our reaching such a high latitude. If that be so it must be admitted that the ice has done full honour to the occasion. Well, never mind, let it crash on so long as we only get northward. The *Fram* will, no doubt, stand it now; she has lifted fully one foot forward and fully six inches aft; and she has slipped a little a-stern. Moreover, we cannot find so much as a single stancheon in the bulwarks that has started; yet to-night every man will sleep fully prepared to make for the ice."

"Monday, January 7th. There was a little jamming of the ice occasionally during the day, but only of slight duration; then all was quiet again. Evidently the ice has not yet settled, and we have perhaps more to expect from our friend to port, whom I would willingly exchange for a better neighbour.

"It seems, however, as if the ice pressure had altered its direction since the wind has changed to S.E. It is now confined to the ridges fore and aft, athwart the wind; while our friend to port, lying almost in the line of the wind, has kept somewhat quieter.

"Everything has an end, as the boy said when he was in for a birching. Perhaps the growth of this ridge has come to an end now, perhaps not; the one thing is just as likely as the other.

"To-day the work of extricating the *Fram* is proceeding; we will at all events get the rails clear of the ice. It presents a most imposing sight by the light of the moon, and however conscious of one's own strength, one cannot help respecting an antagonist who commands such powers, and who, in a few moments, is capable of putting mighty machinery into action. It is rather an awkward battering-ram to face. The *Fram* is equal to it, but no other ship could have resisted such an onslaught. In less than an hour this ice can build up a wall alongside us and over us, which it might take us a month to get out of, and possibly longer than that. There is something gigantic about it; it is like

Art. Photo. Co. London

The "Fram" in the Ice.

a struggle between dwarfs and an ogre, in which the pigmies have to resort to cunning and trickery to get out of the clutches of one who seldom relaxes his grip. The *Fram* is the ship which the pigmies have built with all their cunning in order to fight the ogre, and on board this ship they work as busily as ants, while the ogre only thinks it worth while to roll over and twist his body about now and then, but every time he turns over it seems as though the nutshell would be smashed and buried, and would disappear; but the pigmies have built their nutshell so cleverly that it always keeps afloat, and wriggles itself free from the deadly embrace. The old traditions and legends about giants, about Thor's battles in the Jotunheim, when rocks were split and crags were hurled about, and the valleys were filled with falling boulders, all come back to me, when I look at these mighty ridges of ice winding their way far off in the moonlight; and when I see the men standing on the ice heap, cutting and digging to remove a fraction of it, then they seem to me smaller than pigmies, smaller than ants. But although each ant carries only a single fir-needle, yet in course of time the ants build an anthill, where they can live comfortably, sheltered from storm and winter.

"Had this attack on the *Fram* been planned by the aid of all the wickedness in the world, it could not have been a worse one. The floe, 7 feet thick, has borne down on us on the port side, forcing itself up on the ice

in which we are lying, and crushing it down. Thus the *Fram* was forced down with the ice, while the other floe, packed up on the ice beneath, bore down on her, and took her amidship while she was still frozen fast. As far as I can judge, she could hardly have had a tighter squeeze; it was no wonder that she groaned under it; but she withstood it, broke loose, and eased. Who shall say after this that a vessel's shape is of little consequence? Had the *Fram* not been designed as she was, we should not have been sitting here now. Not a drop of water is to be found in her anywhere. Strangely enough, the ice has not given us another such squeeze since then; perhaps it was its expiring grip we felt on Saturday?

"It is hard to tell, but it was terrific enough. This morning Sverdrup and I went for a walk on the ice, but when we got a little way from the ship, we found no sign of any new packing, the ice was smooth and unbroken as before. The packing has been limited to a certain stretch from east to west, and the *Fram* has been lying at the very worst point of it.

"This afternoon Hansen has worked out yesterday's observation, the result being 83° 34·2′ N. lat. and 102° 51′ E. long. We have therefore drifted north and westward; 15 miles west, indeed, and only 13·5 north, since New Year's Eve, while the wind has been mostly from the south-west. It seems as if the ice has taken a more decided course towards the north-west than

ever, and therefore it is not to be wondered at that there is some pressure when the wind blows athwart the course of the ice. However, I hardly think we need any particular explanation of the pressure, as we have evidently again got into a packing-centre with cracks,

"A MOST REMARKABLE MOON."

lanes, and ridges, where the pressure is maintained for some time, such as we were in during the first winter. We have constantly met with several similar stretches on the surrounding ice, even when it has been most quiet.

"This evening there was a most remarkable brightness right under the moon. It was like an immense

luminous haycock, which rose from the horizon, and touched the great ring round the moon. At the upper side of this ring there was a segment of the usual inverted arc of light."

The next day, January 8th, the ice began grinding occasionally, and while Mogstad and I stood in the hold working on hand-sledges we heard creakings in the ship both above and below us. This was repeated several times; but in the intervals it was quiet. I was often on the ice listening to the grinding and watching how it went on, but it did not go beyond crackling and creaking beneath our feet and in the ridge at our side. Perhaps it is to warn us not to be too confident! I am not so sure that it is not necessary. It is in reality like living on a smoking volcano. The eruption that will seal our fate may occur at any moment. It will either force the ship up or swallow her down. And what are the stakes? Either the *Fram* will get home and the expedition be fully successful, or we shall lose her and have to be content with what we have done, and possibly on our way home we may explore parts of Franz Josef Land. That is all; but most of us feel that it would be hard to lose the ship, and it would be a very sad sight to see her disappear.

"Some of the hands under Sverdrup are working, trying to cut away the hummock-ice on the port side, and they have already made good headway. Mogstad and I are busy getting the sledges in order, and preparing them for use as I want them, whether we go north or south.

THE FRAM AFTER AN ICE-PRESSURE. 10 JANUARY, 1895.

(From a photograph.)

"Liv is two years old to-day.

"She is a big girl now. I wonder if I should be able to recognise her; I suppose I should hardly find a single familiar feature. They are sure to celebrate the day, and she will get all kinds of presents. Many a thought will be sent northwards, but they know not where to look for us; are not aware that we are drifting here embedded in the ice in the highest northern latitudes ever reached, in the deepest polar-night ever penetrated."

During the following days the ice became steadily quieter. In the course of the night of the 9th of January the ice was still slightly cracking and grinding; then it quite subsided, and on the 10th of January the report is "ice perfectly quiet, and if it were not for the ridge on the port side, one would never have thought there had ever been any breach in the eternal stillness, so calm and peaceful is it." Some men went on cutting away the ice, and little by little we could see it is getting less. Mogstad and I were busily engaged in the hold with the new sledges, and during this time I also made an attempt to photograph the *Fram* by moonlight from different points. The results surpassed my expectations; but as the top of the pressure-ridge had now been cut away, these photos do not give an exact impression of the pack-ice, and of how it came hurtling down upon the *Fram*. We then put in order our depôt on the great hummock on the starboard quarter, and

all sleeping bags, Lapland boots, Finn-shoes, wolf-skin clothing, etc., were wrapped in the foresail and placed to the extreme west, the provisions were collected into six different heaps, and the rifles and guns were distributed among three of the heaps and wrapped up in boat-sails. Next, Hansen's instrument-case and my own, together with a bucket-full of rifle-cartridges, were placed under a boat-sail. Then the forge and the smith's tools were arranged separately; and up on the top of the great hummock we laid a heap of sledges and snow-shoes. All the kayaks were laid side by side bottom upwards, the cooking apparatus and lamps, etc., being placed under them. They were spread out in this way, so that in the improbable event of thick floe splitting suddenly, our loss would not be so great. We knew where to find everything, and it might blow and drift to its heart's content, without our losing anything.

On the evening of January 14th, I wrote in my diary: "Two sharp reports were heard in the ship, like shots from a cannon, and then followed a noise, as of something splitting—presumably this must be the cracking of the ice, on account of the frost. It appeared to me that the list on the ship increased at that moment, but perhaps it was only imagination."

As time passed on we all gradually got busy again preparing for the sledge-expedition. On Tuesday, January 15th, I say: "This evening the doctor gave a lesson to Johansen and myself in bandaging and

THE WINTER NIGHT. 14 JANUARY, 1895.

repairing broken limbs. I lay on the table and had a plaster of Paris bandage put round the calf of my leg, while all the crew were looking on. The very sight of this operation cannot fail to suggest unpleasant thoughts. An accident of this nature out in the Polar night with 40° to 50° of cold, would be anything but pleasant, to say nothing of how easily it might mean death to both of us. But who knows?—we might manage somehow. However, such things must not be allowed to happen, and what is more they *shall not*."

As January went on, we could by noon just see the faint dawn of day—that day at whose sunrise we were to start. On January 18th, I say: "By 9 o'clock in the morning I could already distinguish the first indications of dawn, and by noon, it seemed to be getting bright; but it seems hardly credible that in a month's time there will be light enough to travel by. Yet it must be so. True, February is a month which all 'experienced' people consider far too early and much too cold for travelling; hardly anyone would do so in the month of March. But it cannot be helped, we have no time to waste in waiting for additional comfort, if we are to make any progress before the summer, when travelling will be impossible. I am not afraid of the cold, we can always protect ourselves against that.

"Meantime all preparations are proceeding, and I am now getting everything in order connected with copying of diaries, observation books, photographs, etc., that we

are to take with us. Mogstad is working in the hold, making maple guard-runners to put under the sledges. Jacobsen has commenced to put a new sledge together. Pettersen is in the engine-room, making nails for the sledge-fittings, which Mogstad is to put on. In the meantime some of the others have built a large forge out on the ice with blocks of ice and snow, and to-morrow Sverdrup and I will heat and bend the runners in tar and stearine at such a heat as we can produce in the forge. We trust we shall be able to get a sufficient temperature to do this important work thoroughly, in spite of the 40 degrees of frost. Amundsen is now repairing the mill, as there is something wrong with it again, the cog-wheels being worn. He thinks he will be able to get it all right again. Rather chilly work to be lying up there in the wind on the top of the mill, boring in the hard steel and cast-iron by lantern light, and at such a temperature as we are having now. I stood and watched the lantern-light up there to-day, and I soon heard the drill working; one could tell the steel was hard; then I could hear clapping of hands. 'Ah,' thought I, 'you may well clap your hands together, it is not a particularly warm job to be lying up there in the wind.' The worst of it is one cannot wear mittens for such work, but has to use the bare hands if one is to make any progress, and it would not take long to freeze them off; but it has to be done, he says, and he will not give in. He is a splendid

fellow in all he undertakes, and I console him by saying that there are not many before him who have worked on the top of a mill in such frost north of 83°. On many expeditions they have avoided out-of-door work when the temperature got so low. 'Indeed,' he says, 'I thought that other expeditions were in advance of us in that respect. I imagined we had kept indoors too much.' I had no hesitation in enlightening him on this point; I know he will do his best in any case.

"This is, indeed, a strange time for me; I feel as if I were preparing for a summer trip, and the spring was already here; yet it is still mid-winter, and the conditions of the summer trip may be somewhat ambiguous. The ice keeps quiet, the cracking in it and in the *Fram* is due only to the cold. I have during the last few days again read Payer's account of his sledge expedition northwards through Austria Sound. It is not very encouraging. The very land he describes as the realm of Death, where he thinks he and his companions would inevitably have perished had they not recovered the vessel, is the place to which we look for salvation; that is the region we hope to reach when our provisions have come to an end. It may seem reckless, but nevertheless I cannot imagine that it is so. I cannot help believing that a land, which even in April teems with bears, auks, and black guillemots, and where seals are basking on the ice, must be a 'Canaan, flowing with milk and honey,' for two

men who have good rifles and good eyes; it must surely yield food enough not only for the needs of the moment, but also provisions for the journey onwards to Spitzbergen. Sometimes, however, the thought will present itself that it may be very difficult to get the food when it is most sorely needed; but these are only passing moments. We must remember Carlyle's words: 'A man shall and must be valiant, he must march forward, and quit himself like a man—trusting imperturbably in the appointment and choice of the Upper Powers.' I have not, it is true, any 'Upper Powers'; it would probably be well to have them in such a case; but we nevertheless are starting, and the time approaches rapidly. Four weeks or a little more soon pass by, and then farewell to this snug nest, which has been our home for eighteen months, and we go out into the darkness and cold, out into the still more unknown:

"Out yonder 'tis dark,
But onward we must,
Over the dewy wet mountains,
Ride through the land of the ice-troll;
We shall both be saved,
Or the ice-troll's hand
Shall clutch us both."

On January 23rd I write: "The dawn has grown so much that there was a visible light from it on the ice, and for the first time this year I saw the crimson glow of the sun low down in the dawn." We now

took soundings with the lead, before I was to leave the vessel; we found 1,876 fathoms (3,450 metres). I then made some snowshoes down in the hold; it was important to have them smooth, tough and light, on which one could make good headway; "they shall be well rubbed with tar, stearine, and tallow, and there shall be speed in them; then it is only a question of using one's legs, and I have no doubt that can be managed."

"Tuesday, January 29th. Latitude yesterday 83° 30′. Some days ago we had been so far north as 83° 40′, but had again drifted southwards. The light keeps on steadily increasing, and by noon it almost seems to be broad daylight. I believe I could read the title of a book out in the open if the print were large and clear. I take a stroll every morning, greeting the dawning day, before I go down into the hold to my work at the snow-shoes and equipment. My mind is filled with a peculiar sensation, which I cannot clearly define; there is certainly an exulting feeling of triumph deep in the soul, a feeling that all one's dreams are about to be realised with the rising sun, which steers northwards across the icebound waters. But while I am busy in these familiar surroundings, a wave of sadness sometimes comes over me: it is like bidding farewell to a dear friend and to a home, which has long afforded me a sheltering roof; at one blow all this and my dear comrades are to be left behind for ever; never again shall I tread this snow-clad deck, never again creep under this tent, never hear the

laughter ring in this familiar saloon, never again sit in this friendly circle.

"And then I remember that when the *Fram* at last bursts from her bonds of ice, and turns her prow towards Norway, I shall not be with her. A farewell imparts to everything in life its own tinge of sadness, like the crimson rays of the sun, when the day, good or bad, sinks in tears below the horizon.

"Hundreds of times my eye wanders to the map hanging there on the wall, and each time a chill creeps over me. The distance before us seems so long, and the obstacles in our path may be many; but then again the feeling comes, that we are bound to pull through; it cannot be otherwise; everything is too carefully prepared to fail now; and meanwhile the south-east wind is whistling above us and we are continually drifting northwards nearer our goal. When I go up on deck and step out into the night, with its glittering starry vault and the flaring aurora borealis, then all these thoughts recede and I must as ever pause on the threshold of this sanctuary, this dark, deep, silent space, this infinite temple of nature, in which the soul seeks to find its origin. Toiling ant, what matters it, whether you reach your goal with your fir-needle or not! Everything disappears none the less in the ocean of eternity, in the great Nirvana. 'And as time rolls on our names are forgotten, our deeds pass into oblivion and our lives flit by like the traces of a cloud and vanish like the mist

Blessing. Scott-Hansen. Sverdrup.

A WHIST-PARTY IN THE SALOON. 15 FEBRUARY, 1895.

(From a photograph.)

dispelled by the warm rays of the sun. Our time is but a fleeting shadow, hurrying us on to the end, so it is ordained; and having reached that end none ever retraced his steps.'

"Two of us will soon be journeying further through this immense waste, into greater solitudes and deeper stillness."

"Wednesday, January 30th. To-day the great event has happened, that the windmill is again at work for the first time after its long rest. In spite of the cold and the darkness, Amundsen had got the cogwheels into order, and now it is running as smoothly and steadily as guttapercha."

We have now constant north-east winds, and we again bore northwards. On Sunday, February 3rd, we were at 83° 43′. The time for our departure approached, and the preparations were carried on with great activity. The sledges were completed, and I tried them under various conditions. I have alluded to the fact that we made maple guards to put under the fixed nickel-plated runners. The idea of this was to strengthen both the sledges and the runners, so that they would at the beginning of the journey, when the loads were heavy, be less liable to breakage from the jolting to which they would probably be exposed. Later on, when the load got lighter, we might, if we thought fit, easily remove them. These guards were also to serve another purpose. I had an idea that, in view of the

low temperature we had during the winter, and on the dry drift-snow, which then covered the ice-floes, metal would glide less easily than smooth wood, especially if the latter were well rubbed with rich tar and stearine. By February 8th one of the sledges with wooden guard-runners was finished, so that we could make experiments in this direction, and we then found that it was considerably easier to haul than a similar sledge running on the nickel-plate, though the load on each was exactly the same. The difference was so great that we found that it was at least half as hard again to draw a sledge on the nickel runners as on the tarred maple runners.

Our new ash sledges were now nearly finished and weighed 30 lbs. without the guard-runners. "Everybody is hard at work. Sverdrup is sewing bags or bolsters to put on the sledges as beds for the kayaks to rest on. To this end the bags are to be made up to fit the bottoms of the boats. Johansen and one or two other men are stuffing the bags with pemmican, which has to be warmed, beaten, and kneaded in order to give it the right form for making a good bed for our precious boats. When these square, flat bags are carried out into the cold they freeze as hard as stone, and keep their form well. Blessing is sitting up in the work-room, copying the photographs of which I have no prints. Hansen is working out a map of our route so far, and copying out his observations for us, etc., etc. In short, there is hardly a man on board who does not feel that the

Jacobsen. Johansen. Blessing. Sverdrup. Nansen. Scott-Hansen.

THE UPPER END OF THE SUPPER TABLE. 15 FEBRUARY, 1895.

moment for departure approaches ; perhaps the galley is the only place where everything goes on in the usual way under the management of Lars. Our position yesterday was 83° 32·1′ N. lat., and 102° 28′ E. long., so we are southwards again ; but never mind, what do a dozen miles more or less matter to us ?"

"Sunday, February 10th. To-day there was so much daylight that at 1 o'clock I could fairly well read the *Verdens Gang*, when I held the paper up towards the light ; but when I held it towards the moon, which was low in the north, it was no go. Before dinner I went for a short drive with 'Gulen' and 'Susine' (two of the young dogs) and 'Kaifas.' 'Gulen' had never been in harness before, but yet she went quite well ; she was certainly a little awkward at first, but that soon disappeared, and I think she will make a good dog when she is well trained. 'Susine,' who was driven a little last autumn, conducted herself quite like an old sledge-dog. The surface is hard, and easy for the dogs to haul on. They get a good foothold, and the snow is not particularly sharp for their feet ; however, it is not over smooth ; this drift-snow makes heavy going. The ice is smooth, and easy to run on, and I trust we shall be able to make good day-journeys ; after all, we shall reach our destination sooner than we had expected. I cannot deny that it is a long journey, and scarcely anyone has ever more effectually burnt his boats behind him. If we wished to turn back we have absolutely nothing to return

to, not even a bare coast. It will be impossible to find the ship, and before us lies the great unknown. But there is only one road, and that lies straight ahead, right through, be it land or sea, be it smooth or rough, be it mere ice or ice and water. And I cannot but believe that we *must* get through, even if we should meet with the worst, viz., land and pack-ice.

"Wednesday, February 13th. The pemmican bolsters and dried liver pie are now ready; the kayaks will get an excellent bedding, and I venture to say that such meat bolsters are an absolute novelty. Under each kayak there are three of them, they are made to fit the sledge, and as already stated, are moulded to the shape of the kayak. They weigh 100 to 120 lbs. each. The empty sacks weigh 2 or 3 lbs. each, so that altogether the meat (pemmican and liver pie) in these three bags will weigh about 320 lbs. We each had our light sleeping-bags of reindeer's-skin, and we tried to sleep out in them last night, but both Johansen and I found it rather cold, although it was only 37° F. of frost. We were, perhaps, too lightly clad under the wolf's-skin clothing; we are making another experiment with a little more on to-night."

"Saturday, February 16th. The outfitting is still progressing; but there are various small things yet to do which take time, and I do not know whether we shall be ready to start on Wednesday, February 20th, as I originally intended. The day is now so light that as far

LOWER END OF SUPPER TABLE.

as that is concerned we might quite well start then, but, perhaps, we had better wait a day or two longer. Three sledge-sails (for single sledges) are now finished; they are made of very light calico, and are about 7 feet 2 inches broad by 4 feet 4 inches long; they are made so that two of them may be laced together and used as one sail for a double sledge, and I believe they will act well; they weigh a little over 1 lb. each. Moreover, we have now most of the provisions ready stowed away in bags."

CHAPTER III.

We make a Start.

"Tuesday, February 26th. At last the day has arrived, the great day, when the journey is to commence. The week has passed in untiring work to get everything ready. We should have started on the 20th, but it has been postponed from day to day ; there was always something still to do. My head has been full night and day, with all that was to be done and that must not be forgotten. Oh, this unceasing mental strain, which does not allow a minute's respite in which to throw off the responsibility, to give loose rein to the thoughts and let the dreams have full sway ; the nerves are in a state of tension from the moment of awaking in the morning till the eyes close late at night. Ah! how well I know this state, which I have experienced each time I have been about to set out, and retreat was to be cut off—never, I believe, more effectually than now. The last few nights I did not get to bed before half-past three or half-past four o'clock in the morning. It is not only what we ought to take with us that has to be taken care of, but we have to leave

the vessel; its command and responsibility have to be placed in other hands, and care must be taken that nothing is forgotten in the way of instructions to the men who remain; for the scientific observations will have to be continued on the same lines as they have been carried on hitherto, and other observations of all kinds will have to be made, etc., etc."

The last night we were to spend on board the *Fram* eventually arrived, and we had a farewell party. In a strange, sad way, reminiscences were revived of all that had befallen us here on board, mingled with hope and trust in what the future would bring. I remained up till far into the night; letters and remembrances had to be sent to those at home, in case the unforeseen should happen. Amongst the last thing I wrote were the following instructions to Sverdrup, in which I handed over to him the command of the expedition :—

"Captain Otto Sverdrup.

"Commander of the *Fram*.

"As I am now leaving the *Fram*, accompanied by Johansen, to undertake a journey northwards — if possible to the Pole—and from there to Spitzbergen, most likely *viâ* Franz Josef Land, I make over to you the command of the remaining part of the expedition. From the day I leave the *Fram*, all the authority which hitherto was vested in me shall devolve upon you to an

equal extent, and the others will have to render absolute obedience to you, or to whomsoever you may depute as their leader. I consider it superfluous to give any orders about what is to be done under various contingencies, even if it were possible to give any. I am certain you will know best yourself what ought to be done in any emergency, and I therefore consider that I may with confidence leave the *Fram*.

"The chief aim of the expedition is to push through the unknown Polar Sea from the region around the New Siberian Islands, north of Franz Josef Land, and onward to the Atlantic Ocean near Spitzbergen or Greenland. The most essential part of this task, I consider, we have already accomplished; the remainder will be achieved as the expedition gets farther west. In order to make the expedition still more fruitful of results, I am making an attempt to push further up north with the dogs. Your task will then be to convey home, in the safest manner possible, the human lives now confided to your care, and not to expose them to any unnecessary danger, either out of regard for the ship or cargo, or for the scientific outcome of the expedition. No one can tell how long it may take before the *Fram* drifts out into open water. You have provisions for several years to come; if for any unknown reason it should take too long, or if the crew should begin to suffer in health, or if from other reasons you should think it best to abandon the vessel, it should

1. Mogstad. 2. Blessing. 3. Johansen. 4. Scott-Hansen. 5. Amundsen. 6. Bentzen. 7. Sverdrup. 8. Jacobsen. 9. Juell. 10. Nordahl. 11. Pettersen. 12. Henriksen.

THE CREW OF THE FRAM AFTER THEIR SECOND WINTER. ABOUT 24 FEBRUARY, 1895.

(*From a photograph.*)

unquestionably be done. As to the time of the year when this should be done, and the route to be chosen, you yourself will be best able to judge. If it should be necessary, I consider Franz Josef Land and Spitzbergen favourable lands to make for. If search is made for the expedition after the arrival home of Johansen and myself, it will be made there first. Wherever you come to land, you should, as often as you can, erect conspicuous beacons on promontories and projecting headlands, and place within the beacons a short report of what has occurred, and whither you are going. In order to distinguish these beacons from others, a small beacon should be erected 13 feet from the larger one in the direction of the magnetic North Pole. The question as to what outfit would be most advantageous, in case the *Fram* should have to be abandoned, is one which we have so frequently discussed that I consider it superfluous to dwell on it here. I know that you will take care that the requisite number of kayaks for all the men, sledges, snow-shoes, 'truger,' and other articles of outfit are put in complete order as soon as possible, and kept in readiness, so that such a journey home over the ice could be undertaken with the greatest possible ease. Elsewhere I give you directions as to the provisions which I consider most suitable for such a journey, and the quantity necessary for each man.

"I also know that you will hold everything in readiness

to abandon the *Fram* in the shortest possible time in the event of her suffering sudden damage, whether through fire or ice-pressure. If the ice permits it, I consider it advisable that a depôt, with sufficient provisions, etc., should be established at a safe place on the ice, such as we have lately had. All necessaries which cannot be kept on the ice ought to be so placed on board that they are easy to get at under any circumstances. As you are aware, all the provisions now in the depôt are concentrated foods for sledging journeys only ; but as it may happen that you will have to remain inactive for a time before going further, it would be highly desirable to save as much tinned meat, fish, and vegetables as possible ; should troubled times come then, I should consider it advisable to have a supply of these articles ready on the ice.

"Should the *Fram* while drifting be carried far to the north of Spitzbergen, and get over into the current under the east coast of Greenland, many possibilities may be imagined which it is not easy to form an opinion on now ; but should you be obliged to abandon the *Fram* and make for the land, it would be best for you to erect beacons there as stated above (with particulars as to whither you are going, etc.), as search might possibly be made there for the expedition. Whether in that case you ought to make for Iceland (which is the nearest land, and where you should be able to get in the early part of summer, if following the edge of the ice), or

for the Danish colonies west of Cape Farewell, you will be best able to judge on considering all the circumstances.

"As regards what you ought to take with you in the event of abandoning the *Fram*, besides the necessary provisions, I may mention weapons, ammunition, and equipment, *all scientific and other journals and observations, all scientific collections that are not too heavy*, or if too heavy small samples thereof; photographs, preferably the original plates (or films), or should these prove too heavy, then prints taken from them; also the 'Aderman' aerometer, with which most of the observations on the specific gravity of sea-water are taken; as well as, of course, all journals and memoranda which are of any interest. I leave behind some diaries and letters, which I would request you to take special care of, and deliver to Eva, if I should not return home, or if, contrary to all expectation, you should return home before us.

"Hansen and Blessing will, as you know, attend to the various scientific expeditions and to the collecting of specimens. You yourself will attend to the soundings, and see that they are taken as frequently as possible and as the condition of the line permits. I should consider at least once in every 60 miles covered to be *extremely desirable;* if it can be done oftener so much the better. Should the depth become less than now and more variable, it goes without saying that soundings should be taken more frequently.

"As the crew was small before, and will now be still further reduced by two men, more work will probably fall to each man's lot; but I know that, whenever you can, you will spare men to assist in the scientific observations, and make them as complete as possible. Please also see that every tenth day (the first, tenth, and twentieth of every month) the ice is bored through, and the thickness measured, in the same way as has been done hitherto. Henriksen has for the most part made these borings, and is a trustworthy man for this work.

"In conclusion, I wish all possible success to you, and to those for whom you are now responsible, and may we meet again in Norway, whether it be on board of this vessel, or without her.

"Yours affectionately,

"FRIDTJOF NANSEN.

"On board the *Fram*,

"February 25, 1895."

"Now at last the brain was to get some rest, and the work for the legs and arms was to commence. Everything was got ready for the start this morning. Five of our comrades, Sverdrup, Hansen, Blessing, Henriksen, and Mogstad were to see us off on our way, bringing a sledge and a tent with them. The four sledges were got ready, the dogs harnessed to them, lunch with a bottle of malt extract per man, was taken just before starting, and then we bade the last hearty farewell to those

left behind. We were off into the drifting snow. I myself took the lead with 'Kvik' as leading dog, in the first sledge, and then sledge after sledge followed amid cheers, accompanied by the cracking of whips and the barking of dogs. At the same time a salute was fired from the quarter-deck, shot after shot, into the whirling drift. The sledges moved heavily forward; it was slow travelling uphill, and they came to a dead stop where the ascent was too steep, and we all had to help them along, one man alone could not do it; but over level ground we flew along like a whirlwind, and those on snow-shoes found it difficult enough to keep pace with the sledges. I had to strike out as best I could when they came up to me to avoid getting my legs entangled in the line. A man is beckoning with his staff far in the rear. It is Mogstad, who comes tearing along and shouting that three 'flöitstokker'* (cross-bars) had been torn off a sledge in driving. The sledge, with its heavy load, had lurched forward over an upright piece of ice, which struck the cross-bars, breaking all three of them, one after the other; one or two of the perpendicular supports of the runners were also smashed. There was nothing for it but to return to the ship to get it repaired and have the sledges made stronger. Such a thing ought not to happen again. During the return one of

* The cross-bars on the sledge that connect the perpendicular supports of the runners with each other.

the sledges lurched up against another, and a cane in the bow snapped. The bows would, therefore, also have to be made stronger.*

"The sledges have again been unloaded and brought on board, in order that this may be done, and here we are again to-night. I am glad, however, that this happened when it did; it would have been worse to have had such an experience a few days later. I will now take six sledges instead of four, so that the load on each may be less, and so that it will be easier to lift them over the irregularities of the ground. I shall also have a broad board fitted lengthwise to the sledge, underneath the cross-bars, so as to protect them against projecting pieces of ice. As a great deal of time is saved in the end by doing such things thoroughly before starting, we shall not be ready to start before the day after to-morrow. It seemed strange to be on board again after having said good-bye, as I thought, for ever, to these surroundings. When I came up on the after-deck, I found the guns lying there in the snow, one of them turned over on its back, the other had recoiled a long way aft, when saluting us; from the mizzen-top the red and black flag was still waving.

"I am in wonderfully high spirits, and feel confident of success; the sledges seemed to glide so easily, although

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* The sledge runners were connected in front by a bow, consisting of three or four pieces of rattan cane lashed together; it is to this bow the hauling lines are fastened.

carrying 200 lbs. more than was originally intended (about 2,200 lbs. altogether), and everything looks very promising. We shall have to wait a couple of days, but as we are having a south-easterly wind all day long, we are no doubt getting on towards the north, all the same. Yesterday we were 83° 47′, to-day I suppose we are at least 83° 50′."

At last, on Thursday, February 28th, we started again with our six sledges. Sverdrup, Hansen, Blessing, Henriksen, and Mogstad saw us off. When we started most of the others also accompanied us some distance. We soon found that the dogs did not draw as well as I had expected, and I came to the conclusion that with this load we should get on too slowly. We had not proceeded far from the ship before I decided to leave behind some of the sacks with provisions for the dogs, and these were later on taken back on board by the others.

At 4 o'clock in the afternoon, when we stopped, our odometer* showed that we had gone about 4 miles from the *Fram*. We had a pleasant evening in the tent together with our friends who were going back the next day. To my surprise a punch-bowl was prepared, and toasts were proposed for those who were starting

* This odometer had been made on board, shortly before starting, out of the works of an old anemometer. The odometer was fastened behind the last sledge, and indicated fairly correctly the distance covered by us.

and those who remained behind. It was not until 11 o'clock that we crept into our sleeping bags.

There were illuminations in our honour that night on board the *Fram*. The electric arc lamp was hoisted on the main-top, and the electric light for the first time shone forth over the ice masses of the Polar Sea. Torches had also been lit, and bonfires of oakum-ends and other combustibles were burning on several floes around the *Fram* and making a brilliant show. Sverdrup had, by the way, given orders that the electric light or a lantern should be hoisted on the main-top every night until he and the others had returned, for fear they might lose their way if the tracks should be obliterated by bad weather. It would then be very difficult to find the ship ; but such a light can be seen a long distance over these plains, where by merely standing on a hummock one can easily get a view for many miles round.

I was afraid that the dogs, if they got loose, would go back to the *Fram*, and I therefore got two steel-lines made to which short leashes were fastened, a little distance apart, so that the dogs could be secured to these lines between two sticks or sledges. In spite of this several of the dogs got loose, but strange to say, they did not leave us, but remained with their comrades and us. There was of course a doleful howling round the tents the first night, and they disturbed our sleep to some extent.

The next morning (Friday, March 1st) it took one

THE FRAM IN THE ICE. 1895.

of our comrades three hours to make the coffee, being unaccustomed to the apparatus. We had then a very nice breakfast together. Not before 11.30 a.m. did we get under way. Our five comrades accompanied us for an hour or two and then turned to get back to the *Fram* the same evening. "It was certainly a most cheerful good-bye," says the diary, "but it is always hard to part even at 84°, and may be there was a tearful eye or two." The last thing Sverdrup asked me when sitting on his sledge, just as we were about to part, was, if I thought I should go to the South Pole when I got home, for if so he hoped I would wait till he arrived; and then he asked me to give his love to his wife and child.

And so we proceeded, Johansen and I, but it was slow work for us alone with six sledges, which were impeded on their way by all sorts of obstacles and inequalities. Besides this, the ice became rougher, and it was difficult to get on during the afternoon on account of the darkness, the days being still very short, for the sun was not yet above the horizon. We therefore camped rather early.

"Wednesday, March 6th. We are again on board the *Fram* to make a fresh start for the third time, and then, I suppose, it will be in earnest. On Saturday, March 2nd, we proceeded with the six sledges after I had been a trip to the northward, and found it passable. Progress was slow, and we had to do nearly six turns each, as the sledges stopped everywhere

and had to be helped along. I saw now too clearly that we should never get on in this manner; a change would have to be made, and I decided to camp in order to have a look at the ice northward and consider the matter. Having tied up the dogs, I set out, while Johansen was to feed the dogs and put up the tent. They were fed once in every 24 hours, at night, when the day's march was done.

"I had not gone far when I came upon excellent spacious plains, good progress could be made, and so far everything was all right; but the load had to be diminished and the number of sledges reduced. Undoubtedly, therefore, it would be best to return to the *Fram* to make the necessary alterations on board, and get the sledges we were to take with us further strengthened, so as to have perfect confidence in their durability.

"We might, of course, have dragged along, somehow, towards the north for a while, and the load would gradually have decreased; but it would have been slow work, and before the load would be sufficiently lightened the dogs would perhaps be worn out. It was cold for them at night; we heard many of them howling most of the night. If, however, we diminished the load, and consequently allowed a shorter time for the journey, it would be preferable to wait, and not start till a little later in the month, when we could make more out of the time, as the days would be lighter and not so cold, and the snow-surface better. Having spent another night in the tent

—into which it was a hard job to get, dressed in a fur that was stiff with frost, and then into a bag that was also hard frozen—I decided next morning (Sunday, March 3rd) to return to the *Fram*. I harnessed a double team of dogs to one of the sledges, and off they

"SUNDAY AFTERNOON ON BOARD."

went over pressure-ridges and all other obstacles so rapidly that I could hardly keep up with them. In a few hours I covered the same distance which had taken us three days when we started out. The advantage of a lighter load was only too apparent.

"As I approached the *Fram* I saw to my surprise the upper edge of the sun above the ice in the south. It was the first time this year, but I had not expected it as yet. It was the refraction caused by the low temperature which made it visible so soon. The first news I heard from those who came to meet me was that Hansen had the previous afternoon taken an observation, which gave 84° 4′ N. lat.

"It was undoubtedly very pleasant once more to stretch my limbs on the sofa in the *Fram's* saloon, to quench my thirst in delicious lime-juice with sugar, and again to dine in a civilised manner. In the afternoon Hansen and Nordahl went back to Johansen with my team of dogs, to keep him company over-night. When I left him it was understood that he was to start on the return journey as best he could, until I came with others to help him. The dogs lost no time, and the two men reached Johansen's tent in an hour and twenty minutes. At night both they and we had rejoicings in honour of the sun and the 84th degree.

"The next morning three of us went off and fetched the sledges back. Now, when we made for the ship, the dogs dragged much better, and in a short time we should have been on board had it not been for a long lane in the ice which we could see no end to, and which stopped us. Finally we left the sledges and together with the dogs managed to cross over on some loose pieces of ice and got on board. Yesterday we twice tried to fetch the

sledges, but there had evidently been some movement in the lane, and the new ice was still so thin that we dared not trust it. We have, however, to-day got the sledges on board, and we will now for the last time, it is to be hoped, prepare ourselves for the journey. I will now plan out the journey so as to take the shortest possible time, using light sledges and tearing along as fast as legs and snow-shoes will carry us. We shall be none the worse for this delay, provided we do not meet too much pack-ice or too many openings in the ice.

"I have weighed all the dogs, and have come to the conclusion that we can feed them on each other and keep going for about fifty days; having, in addition to this, dog provisions for about thirty days, we ought to be able to travel with dogs for eighty days, and in that time it seems to me we should have arrived somewhere. And besides we have provisions for ourselves for one hundred days. This will be about 440 lbs. on each sledge if we take three, and with nine dogs per sledge we ought to manage it."

So here we were again, busy with preparations and improvements. In the meantime the ice moved a little, broke up, and lanes were formed in various directions. On March 8th I say:—"The crack in the large floe to starboard, formed while we were away, opened yesterday into a broad lane, which we can see stretching with newly-frozen ice towards the horizon both north and south. It is odd how that petroleum launch is always

in 'hot water' wherever it is. This crack formed underneath it, so it was hanging with the stern over the water, when they found it in the morning. We have now decided to cut it up and use the elm-boards for the sledge runners. That will be the end of it."

"Wednesday, March 13th. 84° N. lat., 101° 55′ E. long. The days have passed, working again at the equipment. Everything is now in order. Three sledges are standing ready out on the ice, properly strengthened in every way, with iron fastenings between uprights and cross-bars. These last-mentioned are securely strengthened with extra top-pieces of ash, and protected underneath by boards. This afternoon we tried the dogs with sledges loaded, and they went as easily as could be, and to-morrow we start again for the last time full of courage and confidence, and with the sun up, in the assurance that we are going towards ever brighter days.

"To-night there has been a great farewell feast, with many hearty speeches, and early to-morrow we depart as early as possible, provided our dissipation has not delayed us. I have to-night added the following postscript to Sverdrup's instructions:—

"P.S.—In the foregoing instructions, which I wrote rather hurriedly on the night of February 25th, I omitted to mention things that should have been alluded to. I will restrict myself here to stating further that should you sight unknown land, everything ought, of course, to be

done in order to ascertain and examine it, as far as circumstances will permit. Should the *Fram* drift so near that you think it can be reached without great risk, everything that can be done to explore the land would be of the greatest interest. Every stone, every blade of grass, lichen, or moss, every animal, from the largest to the smallest, would be of great importance ; photographs, and an exact description should not be neglected, at the same time it should be traversed to the greatest possible extent, in order to ascertain its coast-line, size, etc. All such things should, however, only be done, provided they can be accomplished without danger. If the *Fram* is adrift in the ice, it is clear that only short excursions should be made from her, as the members of such expeditions might encounter great difficulties in reaching the vessel again. Should the *Fram* remain stationary for any time, such expeditions should still be undertaken only with great discretion, and not be extended over any great length of time, as no one can foresee when she may commence to drift again, and it would be very undesirable for all concerned if the crew of the *Fram* were to be still further reduced.

"We have so often spoken together about the scientific researches, that I do not consider it necessary to give any further suggestions here. I am certain that you will do everything in your power to make them as perfect as possible, so that the expedition may return with as good results as the circumstances will permit.

And now once again, my wishes for all possible success, and may we meet again before long.

"Your affectionate,

"FRIDTJOF NANSEN.

"The *Fram*, March 13th, 1895."

Before leaving the *Fram* for good, I ought, perhaps, to give a short account of the equipment we finally decided on as the most likely to suit our purposes.

I have already mentioned the two kayaks that had been made during the course of the winter, and that we required to have with us in order to cross possible channels and pools, and also for use when we should come to open sea. Instead of these kayaks, I had at first thought of taking ready-made canvas boat-covers, and of using the sledges as frames to stretch them over. By this means a craft perfectly capable of carrying us over lanes and short bits of open sea could have been rigged up in a very short space of time. I subsequently gave up this idea, however, and decided on the kayak, a craft with which I was familiar, and which I could rely on to render valuable assistance in several respects. Even if we had been able to contrive a cover for the sledges in such a manner that a boat could have been got ready in a short space of time, it would not have been such quick work as simply launching a ready-made kayak. Added to this the craft would, necessarily, have been heavy to row, and, when it

was a question of long distances in open water, such as along the coasts of Franz Josef Land, or across thence to Spitzbergen, much time would have been lost. One consideration indeed, and that of some moment, was the saving in weight if the sledges were made use of; but even this was not of so much importance as it seemed, as the covers of both kinds of craft would have weighed about the same, and what would have been saved in the weight of the frames was not much, if one remembers that a whole kayak-frame only weighs about 16 lbs. Moreover, if kayaks were used, some weight would be saved by being able to carry our provisions and other *impedimenta* in bags of thin material, which could be stowed away in the kayaks, and the latter lashed to the sledges. Our provisions would thus be protected against all risk of attack by dogs, or of being cut by sharp pieces of ice. The other alternative—the canvas cover—which would have required fitting on and folding up again after being in the water, would necessarily, in the low temperatures we had to expect, have become spoiled and leaky. Last, but not least, the kayak with its tightly-covered deck, is a most efficient sea-boat, in which one can get along in any kind of weather, and is also an admirable craft for shooting and fishing purposes. The boat which one could have contrived by the other expedient, could with difficulty have been made at all satisfactory in this respect.

I have also mentioned the *sledges* which I had made for this expedition. They were of the same pattern as those built for the Greenland one; somewhat resembling in shape the Norwegian "skikjelke,"* which is a low, hand-sledge on broad runners, similar to our ordinary snow-shoes. But instead of the broad, flat runners we used in Greenland, I had the runners made in this case about the same in width ($3\frac{1}{6}$ inches), but somewhat convex underneath, as those to be found on the "skikjelke" of Österdalen and elsewhere. These convex runners proved to move very easily on the kind of country which we had to travel over, and they enabled the long sledges to be turned with ease, which was particularly convenient in the drift-ice, where the many irregularities often necessitated a very zig-zag route. The runners were covered with a thin plate of German silver, which, as it always keeps bright and smooth, and does not rust, answered its purpose well. As I mentioned before, there were thin, loose, well tarred, guard-runners of a kind of maple (*acor platonides*) underneath the German silver ones. The sledges were also prepared in various other ways which have been treated of before, for the heavy loads they were to carry at the beginning. The result of this was that they were somewhat heavier than I had intended at first; but in return I had the satisfaction of their being

* They were 12 feet long, 1 foot $9\frac{1}{2}$ inches broad, and rode about 5 inches above the snow.

fit for use during the whole journey, and not once were we stopped or delayed by their breaking down. This has hardly been the case with former sledge journeys.

I have referred several times to our *clothes*, and our trial-trips in them. Although we had come to the conclusion that our wolf-skin garments were too warm for travelling in, we took them with us all the same on our first trip, and wore them too, to a certain extent; but we soon discovered that they were always too warm, and caused undue perspiration. By absorbing all the moisture of the body they became so heavy that they made an appreciable difference in the weight of our loads, and on our return from our three days' absence from the vessel, were so wet that they had to be hung for a long time over the saloon stove to dry. To this was added the experience that when we took them off in the cold, after having worn them for a time, they froze so stiff that it was difficult to get them on again. The result of all this was that I was not very favourably disposed towards them, and eventually made up my mind to keep to my woollen clothes, which I thought would give free outlet to the perspiration. Johansen followed my example. Our clothes then came to consist of about the following: on the upper part of the body two woollen shirts (Jaeger's); outside these I had a camel's-hair coat, and last of all a thick rough jersey. Instead of the jersey, Johansen wore what is called on board ship an "anorak," of thick homespun, provided with a hood,

which he could pull forward in front of his face, and made after an Eskimo pattern. On our legs we had, next our skin, woollen drawers, and over these knickerbockers and loose gaiters of close Norwegian homespun. To protect us from wind and fine-driven snow, which, being of the nature of dust, forces itself into every pore of a woollen fabric, we wore a suit which has been mentioned before, made of a thin, close kind of cotton canvas, and consisting of an upper garment to pull over the head, provided with a hood in Eskimo fashion, and a lower one in the shape of a pair of wide overalls.

An important item in an outfit is the *foot-gear*. Instead of wearing long stockings, I preferred to use loose stocking-legs and socks, as these are easy to dry on one's chest when asleep at night. On a journey of this kind, where one is continually travelling over snow and in a low temperature, whether it be on snowshoes or not, my experience is that Finn-shoes are, without doubt, the most satisfactory covering for the feet in every way, but they must be made of the skin of the hind-legs of the reindeer buck. They are warm and strong, are always flexible, and very easy to put on and take off. They require careful management, however, if they are not to be spoiled at the outset, and one must try as well as one can to dry them when asleep at night. If it be sunny and good drying weather outside, the best plan is to hang them on a couple of snowshoe staffs,

or something of the kind, in the wind outside the tent, preferably turned inside out, so that the skin itself can dry quickly. If one does not take this precaution the hair will soon begin to fall out. In severe cold, such as we had on the first part of the journey, it was impossible to dry them in this way, and our only resource was then to dry them on the feet at night, after having carefully brushed and scraped them free from snow and moisture. Then the next process is to turn them inside out, fill them with "sennegraes" or sedge, if one have it, thrust one's feet in, and creep into the sleeping bag with them on.* For milder weather later on, we had provided ourselves with leather boots, of the "komager" type, such as the Lapps use in summer. In this case they were made of under-tanned ox-hide, with soles of the skin of the blue seal (*Phoca barbara*); well rubbed in with a composition of tar and tallow they make a wonderfully strong and watertight boot, especially for use in wet weather. Inside the Finn shoes we used, at the beginning of our journey, this "sennegraes" (*Carex œsicaria*), of which we had taken a supply. This is most effective in keeping the feet dry and warm, and if used Lapp-wise, *i.e.*, with bare feet, it draws all moisture to itself. At night the wet "sennegraes" must be removed from

* Compare my description of "finsko" (Finn shoes) in "The First Crossing of Greenland," pp. 47 and 48.

the boots, well pulled out with the fingers so that it does not cling together, and then dried during the night by being worn inside the coat or trouser-leg. In the morning it will be about dry, and can be pressed into the boots again. Little by little, however, it becomes used up, and if it is to last out a long journey a good supply must be taken.

We also had with us socks made of sheep's wool and human hair, which were both warm and durable. Then, too, we took squares of "vadmel" or Norwegian homespun, such as are used in our army, which we wore (particularly myself) inside our "komager" on the latter part of the journey, when the snow was wet. They are comfortable to wear and easy to dry, as one can spread them out under one's coat or trousers at night.

On our *hands* we wore large gloves of wolf-skin, in addition to ordinary woollen mittens underneath, neither of them having separate divisions for the fingers. Exactly the same drying process had to be gone through with the gloves as with the foot-gear. Altogether the warmth of one's unfortunate body, which is the only source of heat one has for this sort of work, is chiefly expended in the effort to dry one's various garments ; and we spent our nights in wet compresses, in order that the morrow might pass in a little more comfort.

On our *heads* we wore felt hats, which shaded the eyes from the dazzling light, and were less pervious to the wind than an ordinary woollen cap. Outside the hat we

Mc LAGAN & CUMMING LITHrs EDINBURGH

LIGHT PHENOMENA IN THE POLAR NIGHT, 22nd November 1893. Pastel Sketch.

generally had one or two hoods of cloth. By this means we could regulate the warmth of our heads to a certain extent, and this is no unimportant thing.

It had been my original intention to use light one-man *sleeping-bags*, made of the skin of the reindeer calf. As these, however, proved to be insufficiently warm, I had to resort to the same principle we went on in Greenland, *i.e.*, a double bag of adult reindeer skin ; a considerable increase of warmth is thus attained by the fact that the occupants warm each other. Furthermore, a bag for two men is not a little lighter than two single bags. An objection has been raised to joint bags on the score that one's night's rest is apt to be disturbed, but this I have not found to be the case.

Something which in my opinion ought not to be omitted from a sledge journey is a *tent*. Even if thin and frail, it affords the members of an expedition so much protection and comfort that the inconsiderable increase in weight to the equipment is more than compensated for. The tents which I had had made for the expedition were of strong undressed silk and very light. They were square at the base and pointed at the top, and were pitched by means only of a tent pole in the middle, on the same principle as the four-man tents used in our army. Most of them had canvas floors attached. On our first start we took with us a tent of this kind, intended to hold four men and weighing a little over 7 lbs. The floor is a certain

advantage, as it makes the whole tent compact and quick to put up, besides being more impervious to wind. The whole tent is sewn in one piece, walls and floor together, and the only opening is a little slit through which to crawl. One drawback, however, to it is, that it is almost impossible not to carry in with one a certain amount of snow on the feet. This melts during the night from the heat of one's body lying on it and the floor absorbs the moisture, thereby causing the tent to be always a good deal heavier than the figures given here.

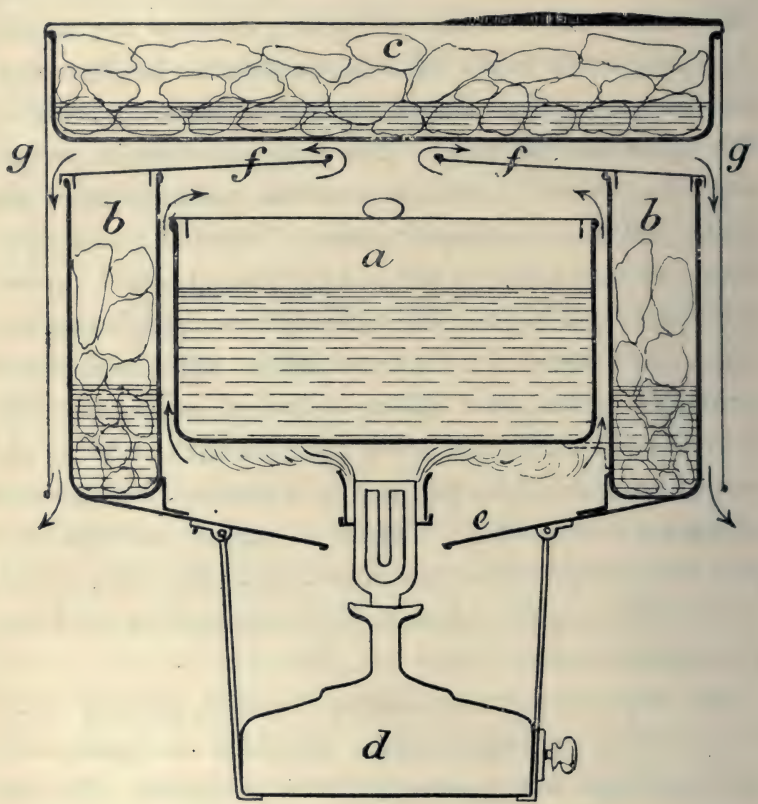
I accordingly relinquished all idea of a tent of this kind, and took with me one of about the same dimensions, and of the same silk material as the other, but without a floor. It took a little longer to put up, but the difference was not great. The walls were kept down by pegs, and when all was finished we would bank it carefully round with snow to exclude wind and draughts. Then came the actual pitching of the tent, which was accomplished by crawling in through the entrance and poking it up with a snowshoe-staff, which also served as tent-pole. It weighed a fraction over 3 lbs., including sixteen pegs, lasted the whole journey through—that is to say, until the autumn—and was always a cherished place of refuge.

The *cooking apparatus* we took with us had the advantage of utilising to the utmost the fuel consumed. With it we were able, in a very short space of time, to

cook food and simultaneously to melt an abundance of drinking water, so that both in the morning and in the evening we were able to drink as much as we wished, and even a surplus remained. The apparatus consisted of two boilers and a vessel for melting snow or ice in, and was constructed in the following manner :—Inside a ring-shaped vessel was placed the boiler, while underneath this again was the lamp. The entire combustion output was thus forced to mount into the space between the boiler and the ring-shaped vessel. Over this was a tight-fitting lid with a hole in the middle, through which the hot air was obliged to pass before it could penetrate farther and reach the bottom of a flat snow-melter, which was placed above it. Then, after having delivered some part of its heat, the air was forced down again on the outside of the ring-shaped vessel by the help of a mantle, or cap, which surrounded the whole. Here it parted with its last remaining warmth to the outerside of the ring-vessel, and finally escaped, almost entirely cooled, from the lower edge of the mantle.

For the heating was used a Swedish gas-petroleum lamp, known as "the Primus," in which the heat turns the petroleum into gas before it is consumed. By this means it renders the combustion unusually complete. Numerous experiments made by Professor Torup at his laboratory proved that the cooker in ordinary circumstances yielded 90 to 93 per cent. of the heat which the petroleum consumed should, by combustion, theoretically

evolve. A more satisfactory result, I think, it would be difficult to obtain. The vessels in this cooker were made of German silver, while the lid, outside cap, etc.,



THE COOKING APPARATUS.

were of aluminium. Together with two tin mugs, two tin spoons, and a tin ladle, it weighed exactly 8 lbs. 13 ozs., while the lamp, the "Primus," weighed $4\frac{1}{2}$ ozs.

As fuel, my choice this time fell on petroleum ("snowflake"). Alcohol, which has generally been used before on Arctic expeditions, has several advantages, and, in particular, is easy to burn. One decided drawback to it, however, is the fact that it does not by any means generate as much heat in comparison with its weight as petroleum when the latter is entirely consumed, as was the case with the lamp used by us. As I was afraid that petroleum might freeze, I had a notion of employing gas-oil, but gave up the idea, as it escapes so easily that it is difficult to preserve, and is, moreover, very explosive. We had no difficulties with our "snowflake" petroleum on account of the cold. We took with us rather more than 4 gallons, and this quantity lasted us 120 days, enabling us to cook two hot meals a day and melt an abundance of water.

Of snowshoes we took several pairs, as we had to be prepared for breakages in the uneven drift-ice; besides this they would probably get considerably worn in the summer-time when the snow became wet and granular. Those we took with us were particularly tough, and slid readily. They were, for the most part, of the same kind of maple as the sledges, and of birch and hickory. They had all been well rubbed in with a concoction of tar, stearine, and tallow.

As we calculated to subsist, in a measure, on what we could shoot ourselves, it was necessary for us to have fire-arms. The most important *gun* for this kind of

work is, naturally, the rifle ; but as, in all likelihood, we should have to go across large expanses of snow, where, probably, there would be little big game, and whereas, on the other hand, birds might very likely come flying over our heads, I thought shot-guns would be the most serviceable to us. Therefore we decided on the same equipment in this respect as we had in Greenland. We took with us two double-barrelled guns (Büchsflints) ; each of them having a shot-barrel of 20-bore and a barrel for ball (Express) of about ·360 calibre. Our supply of ammunition consisted of about 180 rifle cartridges and 150 shot cartridges.

Our *instruments* for determining our position and for working sights were : a small light theodolite, specially constructed for the purpose, which, with its case (this I had also had made to act as a stand) only weighed a little over two pounds. We had, furthermore, a pocket sextant and an artificial glass horizon, a light azimuth compass of aluminium, and a couple of other compasses. For the meteorological observations we had a couple of aneroid barometers, two minimum spirit-thermometers, and three quicksilver sling-thermometers. In addition to these we had a good aluminium telescope, and also a photographic camera.

The most difficult, but also, perhaps, the most important, point in the equipment of a sledge-expedition is thoroughly good and adequate *victualling*. I have already mentioned, in the Introduction to this book, that

the first and foremost object is to protect oneself against scurvy and other maladies by the choice of foods, which, through careful preparation and sterilisation, are assured against decomposition. On a sledge expedition of this kind, where so much attention must be paid to the weight of the equipment, it is hardly possible to take any kinds of provisions except those whose weight has been reduced as much as possible by careful and complete drying. As, however, meat and fish are not so easily digested when dried, it is no unimportant thing to have them in a pulverised form. The dried food is, in this manner, so finely distributed that it can, with equal facility, be digested and received into the organism. This preparation of meat and fish was, therefore, the only kind we took with us. The meat was muscular beef, taken from the ox, and freed from all fat, gristle, etc.; it was then dried as quickly as possible, in a completely fresh condition, and thereupon ground and mixed with the same proportion of beef suet as is used in the ordinary preparation of pemmican. This form of food, which has been used for a considerable time on sledge expeditions, has gained for itself much esteem, and rightly; if well prepared, as ours was, it is undeniably a nourishing and easily digested food.* One ought

* I had also had prepared a large quantity of pemmican, consisting of equal parts of meat-powder and vegetable fat (from the cocoa-nut). This pemmican, however, proved to be rather an unfortunate invention; even the dogs would not eat it after they had tasted it once or

not, however, to trust to its always being harmless, for, if carelessly prepared, *i.e.*, slowly or imperfectly dried, it may also be very injurious to the health.

Another item of our provisions, by which we set great store, was Våge's fish flour. It is well prepared and has admirable keeping qualities; if boiled in water and mixed with flour and butter or dried potatoes, it furnishes a very appetising dish. Another point which should be attended to is that the food be of such a kind that it can be eaten without cooking. Fuel is part of an equipment, no doubt, but if for some reason or other this be lost or used up, one would be in a bad case indeed, had one not provided against such a contingency by taking food which could be eaten in spite of that. In order to save fuel, too, it is important that the food should not require *cooking*, but merely warming. The flour that we took with us had therefore been steamed and could, if necessary, have been eaten as it was, without further preparation. Merely brought to a boil it made a good hot dish. We also took dried boiled potatoes, pea-soup, chocolate vril-food, etc. Our bread was partly carefully-dried wheaten biscuits, and partly aleuronate bread, which I had caused to be made of wheat-flour mixed with about 30 per cent. of aleuronate flour (vegetable albumen).

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twice. Perhaps this is accounted for by the fact that vegetable fat is heavily digested, and contains acids which irritate the mucous membranes of the stomach and throat.

We also took with us a considerable quantity of butter (86 lbs.) which had been well worked on board in order to get out all superfluous water. By this means not only was considerable weight saved, but the butter did not become so hard in the cold. On the whole it must be said that our menus included considerable variety, and we were never subjected to that sameness of food which former sledge expeditions have complained so much of. Finally we always had ravenous appetites, and always thought our meals as delicious as they could be.

Our *medicine-chest* consisted, on this occasion, of a little bag, containing, naturally, only the most absolutely necessary drugs, etc. Some splints and some ligatures, and plaster of Paris bandages, for possible broken legs and arms ; aperient pills and laudanum for derangements of the stomach, which were never required ; chloroform in case of an amputation, for example, from frost-bite ; a couple of small glasses of cocaine in solution for snow-blindness (also unused) ; drops for toothache, carbolic acid, iodoform gauze, a couple of curved needles, and some silk for sewing up wounds ; a scalpel, two artery tweezers (also for amputations), and a few other sundries. Happily our medicines were hardly ever required, except that the ligatures and bandages came in very handily the following winter as wicks for our train-oil lamps. Still better for this purpose, however, is Nicolaysen's plaster, of which we had taken a supply for possible

broken collar-bones. The layer of wax we scraped carefully off, and found it most satisfactory for caulking our leaky kayaks.

LIST OF THE EQUIPMENT.

Sledge No. 1 (with Nansen's Kayak).

	Lbs.	ozs.	Kilos.
Kayak	41	2	18·7
Pump (for pumping kayaks in case of leakage)	1	2	0·5
Sail	1	9	0·7
Axe and geological hammer	1	5	0·6
Gun and case	7	4	3·3
Two small wooden rods belonging to cooker	0	14	0·4
Theodolite and case	4	13	2·2
Three reserve cross-pieces for sledges	2	0	0·9
Some pieces of wood	0	11	0·3
Harpoon line	0	8·4	0·24
Fur-gaiters	1	3	0·55
Five balls of cord	2	9	1·17
Cooker, with two mugs, ladle, and two spoons	8	13	4·0
Petroleum lamp (Primus)	0	4½	0·1
Pocket-flask	0	6	0·17
Bag, with sundry articles of clothing	8	13	4·0
Blanket	4	6	2·0
Jersey	2	8	1·15
Finn-shoes filled with grass.	3	1	1·4
Cap for fitting over opening in kayak	0	7	0·2
One pair "komager"	2	1	0·95
Two pair kayak gloves and one harpoon and line	1	5	0·6
One waterproof sealskin kayak overcoat	3	1	1·4
Tool-bag	2	10	1·2

SLEDGE NO. 1—*continued.*

	Lbs.	ozs.	Kilos.
Bag of sewing materials, including sail-maker's palm, sail needles, and other sundries	2	10	1·2
Three Norwegian flags	0	4	0·1
Medicines, &c.	4	15	2·25
Photographic camera	4	10	2·1
One cassette and one tin box of films	3	14	1·75
One wooden cup	0	3	0·08
One rope (for lashing kayak to sledge)	2	0	0·9
Pieces of reindeer-skin to prevent kayaks from chafing	3	15	1·8
Wooden shovel	2	3	1·0
Snowshoe-staff with disc at bottom	1	9	0·7
One bamboo staff	1	0	0·45
Two oak staffs	2	10	1·2
Seven reserve dog harnesses and two reserve hauling ropes	2	10	1·2
One coil of rope	0	6	0·18
Four bamboo poles, for masts and for steering sledges	8	13	4·0
One bag of bread	5	15	2·7
„ whey-powder	3	5	1·5
„ sugar	2	3	1·0
„ albuminous flour	1	12	0·8
„ lime-juice tablets	1	10	0·73
„ Frame-food stamina tablets	2	7	1·1
As boat's grips, upon the sledges, were :—			
Three sacks of pemmican (together)	238	1	108·2
One sack "leverpostei" or "pâté," made of calf's liver	93	15	42·7

Sledge No. 2. On this was carried in strong sacks:

	Lbs.	ozs.	Kilos.
Albuminous flour	14	15	6·8
Wheat flour	15	6	7·0
Whey-powder	16	15	7·7
Cornflour	8	13	4·0
Sugar	7	1	3·2
Vril food	31	4	14·2
Australian pemmican	13	0	5·9
Chocolate	12	12	5·8
Oatmeal	11	0	5·0
Dried red whortleberries	0	14	0·4
Two sacks of white bread (together)	69	5	31·5
One sack of aleuronate bread	46	10	21·2
"Special food" (a mixture of pea-flour, meat-powder, fat, &c.)	63	13	29·0
Butter	85	13	39·0
Fish-flour (Våge's)	34	2	15·5
Dried potatoes	15	3	6·9
One reindeer-skin sleeping bag	19	13	9·0
Two steel-wire ropes, with couples for twenty-eight dogs	11	0	5·0
One pair hickory snow-shoes	11	0	5·0
Weight of sledge	43	5	19·7

Sledge No. 3 (with Johansen's Kayak).

	Lbs.	ozs.	Kilos.
Kayak	41	6	18·8
Two pieces of reindeer-skin, to prevent chafing	1	12	0·8
A supply of dog shoes	1	3	0·55
One Eskimo shooting-sledge with sail (intended for possible seal-shooting on the ice)	1	10	0·73

SLEDGE No. 3—*continued.*

	Lbs.	ozs.	Kilos.
Two sledge sails	2	10	1·2
Pump	0	14	0·4
Oar-blades (made of canvas stretched on frames, and intended to be lashed to the snowshoe-staffs)	1	2	0·5
Gun	7	2·7	3·26
Flask	0	5·9	0·17
Net (for catching crustacea in the sea)	0	5·2	0·15
One pair "komager"	1	15·7	0·9
Waterproof kayak overcoat of sealskin	2	3	1·0
Fur-gaiters	0	7·3	0·21
Two reserve pieces of wood	0	9·8	0·28
Two tins of petroleum (about 5 gallons)	40	0·6	18·2
Several reserve snow-shoe fastenings	0	15·1	0·43
Lantern for changing plates, &c.	1	1·2	0·49
Artificial glass horizon	0	10·2	0·29
Bag with cords and Nautical Almanack	0	4·6	0·13
Pocket sextant	0	13·7	0·39
Two packets of matches	0	13·7	0·39
One reserve sheet of German silver (for repaving plates under sledge-runners)	0	7·4	0·21
Pitch	0	3·5	0·1
Two minimum thermometers in cases	0	7·4	0·21
Three quicksilver thermometers in cases	0	4·9	0·14
One compass	0	8·8	0·25
One aluminium compass	0	8·4	0·24
„ telescope	11	8·6	0·7
"Sennegraes" or sedge for Finn-shoes	0	7	0·2
Bag with cartridges	26	1	11·85
Leather pouch with reserve shooting requisites, parts for gun-locks, reserve cocks, balls, powder, &c.	3	1	1·4

SLEDGE No. 3—*continued.*

	Lbs.	ozs.	Kilos.
Leather pouch with glass bottle, one spoon, and five pencils . . .	0	10·6	0·3
Bag with navigation tables, Nautical Almanack, cards, &c.	2	7	1·1
Tin box with diaries, letters, photographs, observation-journals, &c. . . .	3	10	1·65
One cap for covering hole in deck of "kayak"	0	8	0·23
One sack of meat-chocolate . . .	17	10	8·0
One bag of soups	6	10	3·0
„ cocoa	7	6	3·35
„ fish-flour	3	12	1·70
„ wheat-flour	2	0	0·90
„ chocolate	4	6	2·0
„ oatmeal	4	6	2·0
„ vril-food	4	6	2·0
As grips upon the sledge were :—			
One sack of oatmeal	29	1	13·2
„ pemmican	115	1	52·3
„ liver "pâté" . . .	111	12	50·8

A list of our dogs and their weights on starting may be of interest :—

	Lbs.	Kilos.
Kvik	78	35·7
Freia	50	22·7
Barbara	49½	22·5
Suggen	61½	28·0
Flint	59½	27·0
Barrabas	61	28·0
Gulen	60½	27·5
Haren	61½	28·0

List of Dogs and their Weights—*continued.*

	Lbs.	Kilos.
Barnet	39	17·7
Sultan	68	31·0
Klapperslangen	59½	27·0
Blok	59	26·7
Bjelki	38	17·3
Sjöliget	40	18·0
Katta	45½	20·7
Narrifas	46	21·0
Livjægeren	38½	17·5
Potifar	57	26·0
Storræven	70	31·8
Isbjön	61½	28·0
Lilleræven	59	26·7
Kvindfolket	57	26·0
Perpetuum	63	28·6
Baro	60½	27·5
Russen	58	26·5
Kaifas	69	31·5
Ulenka	57	26·0
Pan	65	29·5

CHAPTER IV.

We say Good-bye to the "Fram.

At last by mid-day, on March 14th, we finally left the *Fram*, to the noise of a thundering salute. For the third time farewells and mutual good wishes were exchanged. Some of our comrades came a little way with us, but Sverdrup soon turned back in order to be on board for dinner at 1 o'clock. It was on the top of a hummock that we two said good-bye to each other; the *Fram* was lying behind us, and I can remember how I stood watching him as he strode easily homewards on his snow-shoes. I half wished I could turn back with him and find myself again in the warm saloon; I knew only too well that a life of toil lay before us, and that it would be many a long day before we should again sleep and eat under a comfortable roof; but that that time was going to be so long as it really proved to be, none of us then had any idea. We all thought that either the expedition would succeed, and that we should return home that same year, or—that it would not succeed.

Sverdrup. Nansen Henriksen. Mogstad. Johansen. Jacobsen. Scott-Hansen. Juell.
Pettersen. Amundsen.

THE START FROM THE FRAM. 14 MARCH, 1895.

(*From a photograph.*)

A little while after Sverdrup had left us, Mogstad also found it necessary to turn back. He had thought of going with us till the next day, but his heavy wolf-skin trousers were, as he un-euphemistically expressed it, "almost full of sweat, and he must go back to the fire on board to get dry." Hansen, Henriksen, and Pettersen were then the only ones left, and they laboured along each with his load on his back. It was difficult for them to keep up with us on the flat ice, so quickly did we go; but when we came to pressure-ridges we were brought to a standstill and the sledges had to be helped over. At one place the ridge was so bad that we had to carry the sledges a long way. When, after considerable trouble, we had managed to get over it, Peter shook his head reflectively, and said to Johansen that we should meet plenty more of the same kind, and have enough hard work before we had eaten sufficient of the loads to make the sledges run lightly. Just here we came upon a long stretch of bad ice, and Peter became more and more concerned for our future; but towards evening matters improved, and we advanced more rapidly. When we stopped at 6 o'clock the odometer registered a good 7 miles, which was not so bad for a first day's work. We had a cheerful evening in our tent, which was just about big enough to hold all five. Pettersen, who had exerted himself and become overheated on the way, shivered and groaned while the dogs were being tied up and fed, and the tent pitched.

He, however, found existence considerably brighter when he sat inside it, in his warm wolf-skin clothes, with a pot of smoking chocolate before him, a big lump of butter in one hand and a biscuit in the other, and exclaimed, "Now I am living like a prince." He thereafter discoursed at length on the exalting thought that he was sitting in a tent in the middle of the Polar Sea. Poor fellow, he had begged and prayed to be allowed to come with us on this expedition; he would cook for us and make himself generally useful, both as a tin and blacksmith; and then, he said, three would be company. I regretted that I could not take more than one companion, and he had been in the depths of woe for several days, but now found comfort in the fact that he had, at any rate, come part of the way with us, and was out on this great desert sea, for, as he said, "not many people have done that."

The others had no sleeping-bag with them, so they made themselves a cosy little hut of snow, into which they crawled in their wolf-skin garments, and had a tolerably good night. I was awake early the next morning; but when I crept out of the tent I found that somebody else was on his legs before me, and this was Pettersen, who, awakened by the cold, was now walking up and down to warm his stiffened limbs. He had tried it now, he said; he never should have thought it possible to sleep in the snow, but it had not been half bad. He would not quite admit that he had been cold, and that

that was the reason why he had turned out so early. Then we had our last pleasant breakfast together, got the sledges ready, harnessed the dogs, shook hands with our companions, and, without many words being uttered on either side, started out into solitude. Peter shook his head sorrowfully as we went off. I turned round when we had gone some little way, and saw his figure on the top of the hummock; he was still looking after us. His thoughts were probably sad; perhaps he believed that he had spoken to us for the last time.

We found large expanses of flat ice, and covered the ground quickly, farther and farther away from our comrades, into the unknown, where we two alone and the dogs were to wander for months. The *Fram's* rigging had disappeared long ago behind the margin of the ice. We often came on piled-up ridges and uneven ice, where the sledges had to be helped and sometimes carried over. It often happened, too, that they capsized altogether, and it was only by dint of strenuous hauling that we righted them again. Somewhat exhausted by all this hard work, we stopped finally at 6 o'clock in the evening, and had then gone about 9 miles during the day. They were not quite the marches I had reckoned on, but we hoped that by degrees the sledges would become lighter, and the ice better to travel over. The latter, too, seems to have been the case at first. On Sunday, March 17th, I say in my diary: "The ice appears to be more even the farther north we get; came

across a lane, however, yesterday which necessitated a long detour.* At half-past six we had done about 9 miles. As we had just reached a good camping-ground, and the dogs were tired, we stopped. Lowest temperature last night, – 45° Fahr. (– 42·8° C.)."

The ice continued to become more even during the following days, and our marches often amounted to 14 miles or more in the day. Now and then a misfortune might happen which detained us, as, for instance, one day a sharp spike of ice which was standing up cut a hole in a sack of fish-flour, and all the delicious food ran out. It took us more than an hour to collect it all again, and repair the damages. Then the odometer got broken through being jammed in some uneven ice, and it took some hours to mend it by a process of lashing. But on we went northwards, often over great, wide ice-plains which seemed as if they must stretch right to the Pole. Sometimes it happened that we passed through places where the ice was "unusually massive, with high hummocks, so that it looked like undulating country covered with snow." This was undoubtedly very old

* It was not advisable for many reasons to cross the lanes in the kayaks, now that the temperature was so low. Even if the water in the lanes had not nearly always been covered with a more or less thick layer of ice, the kayaks would have become much heavier from the immediate freezing of the water which would have entered them, for they proved to be not absolutely impervious; and this ice we had then no means of dislodging.

OUR LAST CAMP BEFORE PARTING FROM OUR COMRADES.

(*From a photograph.*)

ice, which had drifted in the Polar Sea for a long time on its way from the Siberian Sea to the east coast of Greenland, and must have been subjected year after year to severe pressure. High hummocks and mounds are thus formed, which summer after summer are partially melted by the rays of the sun, and again in the winters covered with great drifts of snow, so that they assume forms which resemble ice-hills, rather than piles of sea-ice resulting from upheaval.

Wednesday, March 20th, my diary says: "Beautiful weather for travelling in, with fine sunsets; but somewhat cold, particularly in the bag, at nights (it was −41·8° and −43·6° Fahr., or −41° and 42° C.). The ice appears to be getting more even the farther we advance, and in some places it is like travelling over 'inland-ice.' If this goes on the whole thing will be done in no time." That day we lost our odometer, and as we did not find it out till some time afterwards, and I did not know how far we might have to go back, I thought it was not worth while to return and look for. It was the cause, however, of our only being able subsequently to guess approximately at the distance we had gone during the day. We had another mishap, too, that day. This was that one of the dogs (it was "Livjægeren") had become so ill that he could not be driven any longer, and we had to let him go loose. It was late in the day before we discovered that he was not with us; he had stopped behind at our camping-

ground when we broke up in the morning, and I had to go back after him on snow-shoes, which caused a long delay.

"Thursday, March 21st. Nine in the morning −43·6° Fahr., or − 42° C. (Minimum in the night, −47·2° Fahr., or −44° C.) Clear, as it has been every day. Beautiful, bright weather; glorious for travelling in, but somewhat cold at nights, with the quicksilver continually frozen. Patching Finn-shoes in this temperature inside the tent, with one's nose slowly freezing away, is not all pure enjoyment."

"Friday, March 22nd. Splendid ice for getting over; things go better and better. Wide expanses, with a few pressure-ridges now and then, but passable everywhere. Kept at it yesterday from about half-past eleven in the morning to half-past eight at night, did a good 21 miles, I hope. We should be in about latitude 85°. The only disagreeable thing to face now is the cold. Our clothes are transformed more and more into a cuirass of ice during the day, and wet bandages at night. The blankets likewise. The sleeping bag gets heavier and heavier from the moisture which freezes on the hair inside. The same clear settled weather every day. We are both longing now for a change; a few clouds and a little more mildness would be welcome." The temperature in the night, −44·8° Fahr. (−42·7° C.). By an observation which I took later in the forenoon, our latitude that day proved to be 85° 9′ N.

"Saturday, March 23rd. On account of observation, lashing the loads on the sledges, patching bags, and other occupations of a like kind, which are no joke in this low temperature, we did not manage to get off yesterday before 3 o'clock in the afternoon. We stuck to it till nine in the evening, when we stopped in some of the worst ice we have seen lately. Our day's march, however, had lain across several large tracts of level ice, so I think that we made 14 miles or so all the same. We have the same brilliant sunshine; but yesterday afternoon the wind from the north-east, which we have had for the last few days, increased, and made it rather raw.

"We passed over a large frozen pool yesterday evening; it looked almost like a large lake." It could not have been long since this was formed, as the ice on it was still quite thin. It is wonderful that these pools can form up there at that time of the year.

From this time forward there was an end of the flat ice, which it had been simple enjoyment to travel over; and now we had often great difficulties to cope with. On Sunday, March 24th, I write:—"Ice not so good; yesterday was a hard day, but we made a few miles, not more, though, than seven, I am afraid. This continual lifting of the heavily-loaded sledges is calculated to break one's back; but better times are coming, perhaps. The cold is also appreciable, always the same; but yesterday it was increased by the admixture of considerable wind from

the north-east. We halted about half-past nine in the evening. It is perceptible how the days lengthen, and how much later the sun sets ; in a few days' time we shall have the midnight sun.

"We killed 'Livjægeren' yesterday evening, and hard work it was skinning him." This was the first dog which had to be killed ; but many came afterwards, and it was some of the most disagreeable work we had on the journey, particularly now at the beginning when it was so cold. When this first dog was dismembered and given to the others, many of them went supperless the whole night in preference to touching the meat. But as the days went by and they became more worn-out, they learned to appreciate dog's-flesh, and later on we were not even so considerate as to skin the butchered animal, but served it hair and all.

The following day the ice was occasionally somewhat better ; but as a rule it was bad, and we became more and more worn-out with the never-ending work of helping the dogs, righting the sledges every time they capsized, and hauling, or carrying them bodily over hummocks and inequalities of the ground. Sometimes we were so sleepy in the evenings that our eyes shut and we fell asleep as we went along. My head would drop, and I would be awakened by suddenly falling forward on my snow-shoes. Then we would stop, after having found a camping-ground behind a hummock or ridge of ice, where there was some shelter from the wind. While

M^c LAREN & CUMMING LITH^rs EDINBURGH

THE POLAR NIGHT, 24th November 1893. Water-Colour Sketch.

An inverted arch above forms a tangent to the uppermost point of the moon-ring. Luminous patches are visible where the moon-ring and the vertical axis passing through the moon intersect the horizon.

Johansen looked after the dogs, it generally fell to my lot to pitch the tent, fill the cooker with ice, light the burner and start the supper as quickly as possible. This generally consisted of "lobscouse" one day, made of pemmican and dried potatoes; another day of a sort of fish rissole substance known as "fiskegratin" in Norway, and in this case composed of fish-meal, flour, and butter. A third day it would be pea, bean, or lentil soup, with bread and pemmican. Johansen preferred the "lobscouse," while I had a weakness for the "fiskegratin." As time went by, however, he came over to my way of thinking, and the "fiskegratin" took precedence of everything else.

As soon as Johansen had finished with the dogs, and the different receptacles containing the ingredients and eatables for breakfast and supper were brought in, as well as our bags with private necessities; the sleeping-bags were spread out, the tent-door carefully shut, and we crept into the bag to thaw our clothes. This was not very agreeable work. During the course of the day the damp exhalations of the body had little by little become condensed in our outer garments, which were now a mass of ice and transformed into complete suits of ice-armour. They were so hard and stiff that if we had only been able to get them off they could have stood by themselves, and they crackled audibly every time we moved. These clothes were so stiff that the sleeve of my coat actually rubbed deep sores in my wrists during our marches; one

of these sores—the one on the right hand—got frost-bitten, the wound grew deeper and deeper, and nearly reached the bone. I tried to protect it with bandages, but not until late in the summer did it heal, and I shall probably have the scar for life. When we got into our sleeping-bags in the evening, our clothes began to thaw slowly, and on this process a considerable amount of physical *heat* was expended. We packed ourselves tight into the bag, and lay with our teeth chattering for an hour, or an hour and a half, before we became aware of a little of the warmth in our bodies which we so sorely needed. At last our clothes became wet and pliant only to freeze again a few minutes after we had turned out of the bag in the morning. There was no question of getting these clothes dried on the journey so long as the cold lasted, as more and more moisture from the body collected in them.

How cold we were as we lay there shivering in the bag, waiting for the supper to be ready! I, who was cook, was obliged to keep myself more or less awake to see to the culinary operations, and sometimes I succeeded. At last the supper was ready, was portioned out and, as always, tasted delicious. These occasions were the supreme moments of our existence, moments to which we looked forward the whole day long. But sometimes we were so weary that our eyes closed, and we fell asleep with the food on its way to our mouths. Our hands would fall back inanimate with the spoons in them and

the food fly out on the bag. After supper we generally permitted ourselves the luxury of a little extra drink, consisting of water, as hot as we could swallow it, in which whey-powder had been dissolved. It tasted something like boiled milk, and we thought it wonderfully comforting; it seemed to warm us to the very ends of our toes. Then we would creep down into the bag again, buckle the flap carefully over our heads, lie close together, and soon sleep the sleep of the just. But even in our dreams we went on ceaselessly, grinding at the sledges and driving the dogs, always northwards, and I was often awakened by hearing Johansen calling in his sleep to "Pan," or "Barrabas," or "Klapperslangen": "Get on, you devil, you! Go on, you brutes! Sass, sass!* Now the whole thing is going over!" and execrations less fit for reproduction, until I went to sleep again.

In the morning, as cook, I was obliged to turn out to prepare the breakfast, which took an hour's time. As a rule, it consisted one morning of chocolate, bread, butter, and pemmican; another of oatmeal porridge, or a compound of flour, water, and butter, in imitation of our "butter-porridge" at home. This was washed down with milk, made of whey-powder and water. The breakfast ready, Johansen was roused; we sat up in the sleeping-bag, one of the blankets was spread out as

* Used by the Lapps to their dogs.—*Trans.*

a table-cloth, and we fell to work. We had a comfortable breakfast, wrote up our diaries, and then had to think about starting. But how tired we sometimes were, and how often would I not have given anything to be able to creep to the bottom of the bag again and sleep the clock round. It seemed to me as if this must be the greatest pleasure in life, but our business was to fight our way northwards, always northwards. We performed our toilets, and then came the going out into the cold to get the sledges ready, disentangle the dogs' traces, harness the animals, and get off as quickly as possible. I went first to find the way through the uneven ice, then came the sledge with my kayak. The dogs soon learned to follow, but at every unevenness of the ground they stopped, and if one could not get them all to start again at the same time by a shout, and so pull the sledge over the difficulty, one had to go back to beat or help them, according as circumstances necessitated. Then came Johansen with the two other sledges, always shouting to the dogs to pull harder, always beating them, and himself hauling to get the sledges over the terrible ridges of ice. It was undeniable cruelty to the poor animals from first to last, and one must often look back on it with horror. It makes me shudder even now when I think of how we beat them mercilessly with thick ash sticks when, hardly able to move, they stopped from sheer exhaustion. It made one's heart bleed to see them, but we turned our eyes

away and hardened ourselves. It was necessary; forward we must go, and to this end everything else must give place. It is the sad part of expeditions of this kind that one systematically kills all better feelings, until only hard-hearted egoism remains. When I think of all those splendid animals, toiling for us without a murmur, as long as they could strain a muscle, never getting any thanks or even so much as a kind word, daily writhing under the lash until the time came when they could do no more and death freed them from their pangs—when I think of how they were left behind, one by one, up there on those desolate ice-fields, which had been witness to their faithfulness and devotion, I have moments of bitter self-reproach.

It took us two alone such a long time to pitch the tent, feed the dogs, cook, etc., in the evening, and then break up again and get ready in the morning, that the days never seemed long enough if we were to do proper day's marches, and, besides, get the sleep we required at night. But when the nights became so light, it was not so necessary to keep regular hours any longer, and we started when we pleased, whether it was night or day. We stopped, too, when it suited us, and took the sleep which might be necessary for ourselves and the dogs. I tried to make it a rule that our marches were to be of nine or ten hours' duration. In the middle of the day we generally had a rest and something to eat; as a rule bread and butter, with a little pemmican or liver pâté. These dinners were a

bitter trial. We used to try and find a good sheltered place, and sometimes even rolled ourselves up in our blankets, but all the same the wind cut right through us as we sat on the sledges eating our meal. Sometimes, again, we spread the sleeping-bag out on the ice, took our food with us, and crept well in, but even then did not succeed in thawing either it or our clothes. When this was too much for us we walked up and down to keep ourselves warm, and ate our food as we walked. Then came the no less bitter task of disentangling the dogs' traces, and we were glad when we could get off again. In the afternoon, as a rule, we each had a piece of meat-chocolate.

Most Arctic travellers who have gone sledge journeys have complained of the so-called Arctic thirst, and it has been considered an almost unavoidable evil in connection with a long journey across wastes of snow. It is often increased, too, by the eating of snow. I had prepared myself for this thirst, from which we had also suffered severely when crossing Greenland, and had taken with me a couple of indiarubber flasks, which we filled with water every morning from the cooker, and by carrying in the breast were able to protect from the cold. To my great astonishment, however, I soon discovered that the whole day would often pass by without my as much as tasting the water in my flask. As time went by, the less need did I feel to drink during the day, and at last I gave up taking water with me altogether. If a passing

feeling of thirst made itself felt, a piece of fresh ice, of which, as a rule, there was always some to be found, was sufficient to dispel it.* The reason why we were spared this suffering which has been one of the greatest hardships of many sledge expeditions, must be attributed in a great measure to our admirable cooking apparatus. By the help of this we were able, with the consumption of a minimum of fuel, to melt and boil so much water every morning that we could drink all we wished. There was even some left over, as a rule, which had to be thrown away. The same thing was generally the case in the evening.

"Friday, March 29. We are grinding on, but very slowly. The ice is only tolerable, and not what I expected from the beginning. There are often great ridges of piled up ice of dismal aspect, which take up a great deal of time, as one must go on ahead to find a way, and, as a rule, make a greater or less detour to get over them. In addition, the dogs are growing rather slow and slack, and it is almost impossible to get them on. And then this endless disentangling of the hauling-ropes, with their infernal twists and knots which get worse and worse to undo! The dogs jump over, and in between

* Whereas eating snow may increase the above-mentioned feeling of thirst, and have disagreeable consequences in other ways, sucking a piece of ice, which will soon quench it, may safely be resorted to, particularly if it be held in the hand a little while before putting it in the mouth. Many travellers have, no doubt, had the same experience.

one another incessantly, and no sooner has one carefully cleared the hauling-ropes, than they are twisted into a veritable skein again. Then one of the sledges is stopped by a block of ice. The dogs howl impatiently to follow their companions in front; then one bites through a trace and starts off on his own account, perhaps followed by one or two others, and these must be caught, and the traces knotted; there is no time to splice them properly, nor would it be a very congenial task in this cold. So we go on when the ice is uneven, and every hour and a half at least, have to stop and disentangle the traces.

"We started yesterday about half-past eight in the morning, and stopped about five in the afternoon. After dinner the north-easterly wind, which we have had the whole time, suddenly became stronger, and the sky overcast. We welcomed it with joy, for we saw in it the sign of a probable change of weather and an end to this perpetual cold and brightness. I do not think we deceived ourselves either. Yesterday evening the temperature had risen to $-29{\cdot}2°$ Fahr. ($-34°$ C.), and we had the best night in the bag we have had for a long time. Just now, as I am getting the breakfast ready, I see that it is clear again, and the sun is shining through the tent wall.

"The ice we are now travelling over seems, on the whole, to be old; but sometimes we come across tracts, of considerable width, of uneven new ice, which must have been pressed up a considerable time. I cannot account for it in any other way than by supposing

it to be ice from great open pools which must have formed here at one time. We have traversed pools of this description, with level ice on them, several times." That day I took a meridian observation, which, however, did not make us farther north than 85° 30′. I could not understand this; thought that we must be in latitude 86°, and, therefore, supposed there must be something wrong with the observation.

"Saturday, March 30th. Yesterday was Tycho Brahe's day. At first we found much uneven ice and had to strike a devious route to get through it, so that our day's march did not amount to much, although we kept at it a long time. At the end of it, however, and after considerable toil, we found ourselves on splendid flat ice, more level than it had been for a long time. At last, then, we had come on some more of the good old kind, and could not complain of some rubble and snow-drifts here and there; but then we were stopped by some ugly pressure-ridges, of the worst kind, formed by the packing of enormous blocks. The last ridge was the worst of all, and before it yawned a crack in the thick ice, about 12 feet deep. When the first sledge was going over all the dogs fell in and had to be hauled up again. One of them—'Klapperslangen'—slipped his harness and ran away. As the next sledge was going over it fell in bodily, but happily was not smashed to atoms, as it might have been. We had to unload it entirely in order to get it up again, and then reload, all

of which took up a great deal of time. Then, too, the dogs had to be thrown down and dragged up on the other side. With the third sledge we managed better, and after we had gone a little way farther the runaway

A NIGHT CAMP ON THE JOURNEY NORTH.

dog came back. At last we reached a camping-ground, pitched our tent, and found that the thermometer showed −45·4° Fahr. (−43° C.). Disentangling dog-traces in this temperature, with one's bare, frost-bitten, almost skinless

hands is desperate work. But finally we were in our dear bag, with the 'Primus' singing cosily, when, to crown our misfortunes, I discovered that it would not burn. I examined it everywhere, but could find nothing wrong. Johansen had to turn out and go and fetch the tools and a reserve burner, while I studied the cooker. At last I discovered that some ice had got in under the lid, and this had caused a leakage. Finally we got it to light, and at 5 o'clock in the morning the pea-soup was ready, and very good it was. At three in the afternoon I was up again cooking. Thank Heaven, it is warm and comfortable in the bag, or this sort of life would be intolerable.

"Sunday, March 31st. Yesterday, at last, came the long-wished-for change of weather, with southerly wind and rising temperature. Early this morning the thermometer showed $-22°$ Fahr. ($-30°$ C.), regular summer weather, in fact. It was, therefore, with lightened hearts that we set off over good ice, and with the wind at our backs. On we went at a very fair pace, and everything was going well, when a lane suddenly opened just in front of the first sledge. We managed to get this over by the skin of our teeth; but just as we were going to cross the lane again after the other sledges a large piece of ice broke under Johansen, and he fell in, wetting both legs—a deplorable incident. While the lane was gradually opening more and more, I went up and down it to find a way over, but without success. Here

we were, with one man and a sledge on one side, two sledges and a wet man on the other, with an ever-widening lane between. The kayaks could not be launched, as, through the frequent capsizing of the sledges, they had got holes in them, and for the time being were useless. This was a cheerful prospect for the night; I on one side with the tent, Johansen, probably frozen stiff, on the other. At last, after a long detour, I found a way over; and the sledges were conveyed across. It was out of the question, however, to attempt to go on, as Johansen's nether extremities were a mass of ice and his overalls so torn that extensive repairs were necessary."

CHAPTER V.

A Hard Struggle.

"Tuesday, April 2nd. There are many different kinds of difficulty to overcome on this journey, but the worst of all, perhaps, is getting all the trifles done and starting off. In spite of my being up by 7 o'clock on Monday evening to do the cooking, it was nearly two this morning before we got clear of our camping-ground. The load on Johansen's sledge had to be relashed, as the contents of one grip had been eaten up, and we had to put a sack of bread in its place. Another grip had to be sewn together, as it was leaking pemmican. Then the sledge from which the bread-sack had been taken had to be lashed secure again, and while we had the ropes undone it was just as well to get out a supply of potatoes.* During this operation we discovered that

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* We always kept a supply of our various provisions in small bags inside the "kayaks," so that we could get out whatever we wanted for our daily consumption without undoing the big sacks, which were sewn up or securely fastened in other ways.

there was a hole in the fish-flour sack, which we tied up, but no sooner had we done so, than we found another large one which required sewing. When we came to pack the potato-sack this too had a hole in it, which we tied up, and so on. Then the dogs' traces had to be disentangled; the whole thing was in an inextricable muddle, and the knots and twists in the icy, frozen rope got worse and worse to deal with. Johansen made haste and patched his trousers before breakfast. The south wind had become what on board the *Fram* we should have called a 'mill breeze' (*i.e.*, 19 to 23 feet in the second); and, with this at our back, we started off in driving snow. Everything went splendidly at first, but then came one pressure-ridge after another, and each one was worse than the last. We had a long halt for dinner at eight or nine in the morning, after having chosen ourselves a sheltered place in the lee of a ridge. We spread out the sleeping-bag, crept down into it with our food, and so tired was I that I went to sleep with it in my hand. I dreamed I was in Norway, and on a visit to some people I had only seen once in my life before. It was Christmas Day, and I was shown into a great empty room, where we were intended to dine. The room was very cold, and I shivered, but there were already some hot dishes steaming on the table, and a beautiful fat goose. How unspeakably did I look forward to that goose. Then some other visitors began to arrive; I could see them through the window, and was

NORTHWARDS THROUGH THE DRIFT SNOW. APRIL, 1895.

(By H. Egidius, from photograph.)

just going out to meet them, when I stumbled into deep snow. How it all happened, in the middle of the dining-room floor, I know not. The host laughed in an amused way, and—I woke up and found myself shivering in a sleeping-bag on the drift-ice in the far north. Oh, how miserable I felt! We got up, packed our things silently together, and started off. Not until 4 o'clock that afternoon did we stop, but everything was dull and cheerless, and it was long before I got over my disappointment. What would I not have given for that dinner, or for one hour in the room, cold as it was.

"The ridges and the lanes which had frozen together again, with rubble on either side, became worse and worse. Making one's way through these new ridges is desperate work. One cannot use snowshoes, as there is too little snow between the piled-up blocks of ice, and one must wade along without them. It is also impossible to see anything in this thick weather—everything is white—irregularities and holes; and the spaces between the blocks are covered with a thin, deceptive layer of snow, which lets one crashing through into cracks and pitfalls, so that one is lucky to get off without a broken leg. It is necessary to go long distances on ahead in order to find a way; sometimes one must search in one direction, sometimes in another, and then back again to fetch the sledges, with the result that the same ground is gone over many times. Yesterday, when we stopped, I really was done. The worst of it all, though, was

that when we finally came to a standstill we had been on the move so long that it was too late to wind up our watches. Johansen's had stopped altogether; mine was ticking, and happily still going when I wound it up, so I hope that it is all right. Twelve mid-day, −24·6° Fahr. (−31·5° C.). Clear weather, south-easterly wind (13 feet in the second).

"The ice seems to be getting worse and worse, and I am beginning to have doubts as to the wisdom of keeping northwards too long.

"Wednesday, April 3rd. Got under way yesterday about three in the afternoon. The snow was in first-rate condition after the south-east wind, which continued blowing till late in the day. The ice was tolerably passable, and everything looked more promising; the weather was fine, and we made good progress. But after several level tracts with old humpy ice, came some very uneven ones, intersected by lanes and pressure-ridges as usual. Matters did not grow any better as time went on, and at midnight or soon after we were stopped by some bad ice and a newly frozen lane which would not bear. As we should have had to make a long detour, we encamped, and Russen was killed (this was the second dog to go). The meat was divided into 26 portions, but eight dogs refused it, and had to be given pemmican. The ice ahead does not look inviting. These ridges are enough to make one despair, and there seems to be no prospect of things

bettering. I turned out at midday and took a meridian observation, which makes us in 85° 59′ N. It is astonishing that we have not got farther; we seem to toil all we can, but without much progress. Beginning to doubt seriously of the advisability of continuing northwards much longer. It is three times as far to Franz Josef Land as the distance we have now come. How may the ice be in that direction? We can hardly count on its being better than here, or our progress quicker. Then, too, the shape and extent of Franz Josef Land are unknown, and may cause us considerable delay, and perhaps we shall not be able to find any game just at once. I have long seen that it is impossible to reach the Pole itself or its immediate vicinity over such ice as this, and with these dogs. If only we had more of them! What would I not give now to have the Olenek dogs? We must turn sooner or later. But as it is only a question of time, could we not turn it to better account in Franz Josef Land than by travelling over this drift-ice, which we have now had a good opportunity of learning to know? In all probability it will be exactly the same right to the Pole. We cannot hope to reach any considerable distance higher before time compels us to turn. We certainly ought not to wait much longer. Twelve midday, −20·8° Fahr. (−29·4° C.), clear weather, 3 feet wind from east; twelve midnight, −29·2° Fahr. (−34° C.) clear and still."

It became more and more of a riddle to me that we did not make greater progress northwards. I kept on calculating and adding up our marches as we went along, but always with the same result; that is to say, provided only the ice were still, we must be far above the eighty-sixth parallel. It was becoming only too clear to me, however, that the ice was moving southwards, and that in its capricious drift, at the mercy of wind and current, we had our worst enemy to combat.

"Friday, April 5th. Began our march at three yesterday morning. The ice, however, was bad, with lanes and ridges, so that our progress was but little. These lanes, with rubble thrown up on each side, are our despair. It is like driving over a tract of rocks, and delays us terribly. First I must go on ahead to find a way, and then get my sledge through; then, perhaps, by way of a change, one falls into the water: yesterday I fell through twice. If I work hard in finding a way and guiding my sledge over rough places, Johansen is no better off, with his two sledges to look after. It is a tough job to get even one of them over the rubble, to say nothing of the ridges; but he is a plucky fellow, and no mistake, and never gives in. Yesterday he fell into the water again in crossing a lane, and got wet up to his knees. I had gone over on my snowshoes shortly before, and did not notice that the ice was weak. He came afterwards without snowshoes walking beside one of the

OVER DIFFICULT PRESSURE MOUNDS. APRIL, 1895.

(*By A. Eiebakke, from a photograph*)

sledges, when suddenly the ice gave, and he fell through. Happily he managed to catch hold of the sledge, and the dogs, which did not stop, pulled him up again. These baths are not an unmixed pleasure now that there is no possibility of drying or changing one's clothes, and one must wear a chain mail of ice until they thaw and dry on the body, which takes some time in this temperature. I took an observation for longitude and a magnetic observation yesterday morning, and have spent the whole forenoon to-day in calculations (inside the bag) to find out our exact position. I find our latitude yesterday was 86° 2·8′ N. This is very little, but what can we do when the ice is what it is? And these dogs cannot work harder than they do, poor things. I sigh for the sledge-dogs from the Olenek daily now. The longitude for yesterday was 98° 47·15″, variation 44·4°.

"I begin to think more and more that we ought to turn back before the time we originally fixed.* It is probably 350 miles or so to Petermann's Land (in point of fact it was about 450 miles to Cape Fligely); but it will probably take us all we know to get over them. The question resolves itself into this: Ought we not, at any rate, to reach 87° N.? But I doubt whether we can manage it, if the ice does not improve.

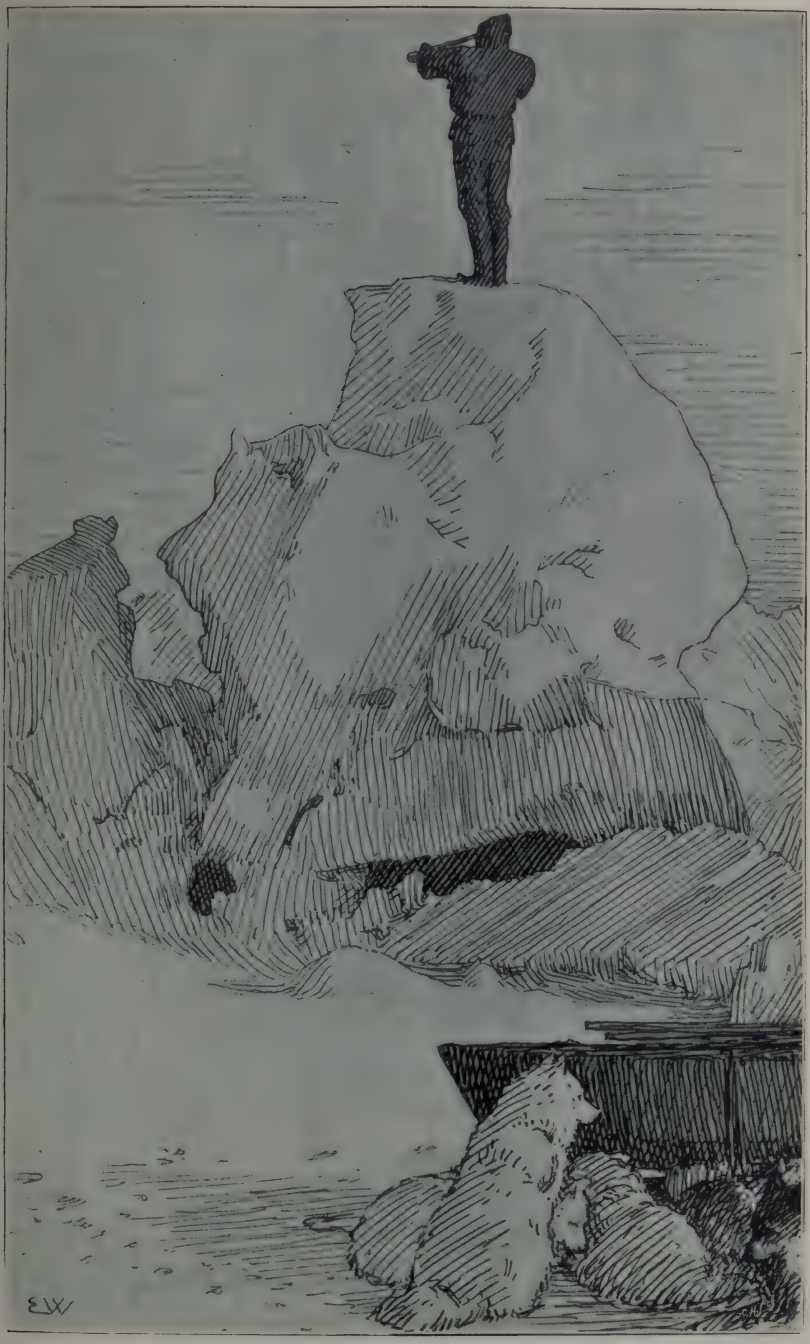
"Saturday, April 6th. Two a.m., —11·4° Fahr.

* When I left the ship I had purposed to travel northwards for 50 days, for which time we had taken provender for the dogs.

(−24·2° C.). The ice grew worse and worse. Yesterday it brought me to the verge of despair, and when we stopped this morning I had almost decided to turn back. I will go on one day longer, however, to see if the ice is really as bad farther northwards as it appears to be from the ridge, 30 feet in height, where we are encamped. We hardly made 4 miles yesterday. Lanes, ridges, and endless rough ice, it looks like an endless moraine of ice-blocks; and this continual lifting of the sledges over every irregularity is enough to tire out giants. Curious this rubble-ice. For the most part it is not so very massive, and seems as if it had been forced up somewhat recently, for it is incompletely covered with thin, loose snow, through which one falls suddenly up to one's middle. And thus it extends mile after mile northwards, while every now and then there are old floes, with mounds that have been rounded off by the action of the sun in the summer—often very massive ice.

"I am rapidly coming to the conclusion that we are not doing any good here. We shall not be able to get much farther north, and it will be slow work indeed if there be much more of this sort of ice towards Franz Josef Land. On the other hand, we should be able to make much better use of our time there, if we should have any over. 8.30 p.m., −29·2° Fahr. (−34° C.).

"Monday, April 8th. No, the ice grew worse and worse, and we got no way. Ridge after ridge, and nothing but rubble to travel over. We made a start



NOTHING BUT ICE, ICE TO THE HORIZON. 7 APRIL, 1895.

at two o'clock or so this morning, and kept at it as long as we could, lifting the sledges all the time; but it grew too

"I WENT ON AHEAD ON SNOWSHOES."

bad at last. I went on a good way ahead on snowshoes, but saw no reasonable prospect of advance, and from the

highest hummocks only the same kind of ice was to be seen. It was a veritable chaos of ice-blocks, stretching as far as the horizon. There is not much sense in keeping on longer; we are sacrificing valuable time and doing little. If there be much more such ice between here and Franz Josef Land, we shall, indeed, want all the time we have.

"I therefore determined to stop, and shape our course for Cape Fligely.

"On this northernmost camping-ground we indulged in a banquet, consisting of lobscouse, bread-and-butter, dry chocolate, stewed 'tytlebær,' or red whortleberries, and our hot whey drink, and then, with a delightful and unfamiliar feeling of repletion, crept into the dear bag, our best friend. I took a meridian observation yesterday, by which I see that we should be in latitude 86° 10′ N., or thereabouts.* This morning I took an observation for longitude. At 8.30 a.m., — 25·6° Fahr. (— 32° C.)."

"Tuesday, April 9th. Yesterday's was our first march homewards. We expected the same impracticable ice, but, to our amazement, had not gone far before we came on tolerably good ground, which improved steadily, and, with only a few stoppages, we kept at it till this morning.

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* This was the latitude I got by a rough estimation, but on further calculation it proved to be 86° 13·6′ N.; the longitude was about 95° E.

OUR NORTHERNMOST CAMP, 86° 13·6′ N.L. 8 APRIL, 1895.

(*By Lars Jorde, from a photograph.*)

We came upon ridges, to be sure, but they always allowed themselves to be negotiated pretty easily, and we did well. Started yesterday about two in the afternoon, and kept going till one this morning."

"Thursday, April 11th. Better and better. Found nothing but beautiful level tracts of ice yesterday, with a

"OVER TOLERABLY GOOD GROUND."

few ridges, which were easy to get over, and some lanes, with young ice on, which gave us rather more trouble. They ran, however, about in our direction (our course is now the magnetic S. 22° W., or about the true W.S.W.), and we could go alongside them. At last, however, we had to make a crossing, and accomplished it successfully, although the ice bent under us and our sledges more than

was desirable. Late in the afternoon we came across a channel, which we proposed to cross in the same way. We reached the other side with the first sledge safely enough, but not so with the other. Hardly had the leaders of the team got out to the dangerous place where the ice was thinnest, and where some water was on the surface, when they stopped and warily dipped their paws in the water. Then through went one of them, splashing and struggling to get out. The ice began to sink under the weight of the other dogs and the sledge, and the water came flowing up. I dragged dogs and sledge back as quickly as possible, and succeeded in driving them all on to the firm ice again in safety. We tried once again at another place, I running over first on snowshoes and calling to the dogs, and Johansen pushing behind, but the result was no better than the first time, as 'Suggen' fell in, and we had to go back. Only after a long detour, and very much fagged, did we finally succeed in getting the two last sledges over. We were lucky in finding a good camping-place, and had the warmest night and the most comfortable (I might almost say cosy) morning—spent, be it said, in repairs—that we have had on the trip. I think we did the longest day's march yesterday that we have yet achieved: about 15 miles. Two in the afternoon, —17·6° Fahr. (— 27·6° C.).

"Saturday, April 13th. We have traversed nothing but good ice for three days. If this goes on, the

return journey will be quicker than I thought. I do not understand this sudden change in the nature of the ice. Can it be that we are travelling in the same direction with the trend of the ridges and irregularities, so that now we go along between them instead of having to make our way over them? The lanes we have come across seem all to point to this; they follow our course pretty closely. We had the misfortune yesterday to let our watches run down; the time between our getting into the bag on the previous night and encamping yesterday was too long. Of course we wound them up again, but the only thing I can now do to find Greenwich mean time is to take a time-observation and an observation for latitude, and then estimate the approximate distance from our turning-point on April 8th, when I took the last observation for longitude. By this means the error will hardly be great.

"I conclude that we have not gone less than 14 miles a day on an average the last three days, and have consequently advanced 40 or more miles in a direction S. 22° W. (magnetic). When we stopped here yesterday 'Barbara' was killed. These slaughterings are not very pleasant episodes. Clear weather; at 6.30 this morning — 22° Fahr. (— 30° C.); wind south (6 to 9 feet).

"April 14th. Easter Day. We were unfortunate with lanes yesterday, and they forced us considerably out of our course. We were stopped at last by a particularly awkward one, and after I had gone alongside it to find a

crossing for some distance without success, I thought we had better, in the circumstances, pitch our tent and have a festive Easter Eve. In addition, I wished to reckon out our latitude, longitude, our observation for time, and our variation; it was a question of getting the right time again as quickly as possible. The tent up, and Johansen attending to the dogs, I crept into the bag; but lying thawing in this frozen receptacle, with frozen clothes and shoes, and simultaneously working out an observation and looking up logarithms, with tender, frost-bitten fingers, is not pleasurable, even if the temperature be only — 22° Fahr. It is slow work, and Easter Day has had to be devoted to the rest of the calculation, so that we shall not get off before this evening. Meanwhile we had a festive Easter Eve and regaled ourselves with the following delicacies: Hot whey and water, fish *au gratin*, stewed red whortleberries, and lime-juice grog (*i.e.*, lime-juice tablets and a little sugar dissolved in hot water). Simply a splendid dinner, and having feasted our fill, we at last, at 2 o'clock, crept in under the cover.

"I have calculated our previous latitudes and longitudes over again to see if I can discover any mistake in them. I find that we should yesterday have come farther south than 86° 5·3′ N.; but, according to our reckoning, assuming that we covered 50 miles during the three days, we should have come down to 85 degrees and 50 odd minutes. I cannot explain it in any other manner than by the surmise that we

have been drifting rapidly northwards, which is very good for the *Fram*, but less so for us. The wind has been southerly the last few days. I assume that we are now in longitude 86° E., and have reckoned the present reading of our watches accordingly.* The variation here I find to be 42·5°. Yesterday we steered S. 10° W. (magnetic); to-day I will keep S. 5° W., and to-morrow due south. By way of a change to-day, the sky has been overcast; but this evening, when we partook of our second breakfast, the sun was shining cheerily in through the tent-wall. Johansen has patched clothes to-day, while I have made calculations and pricked out the courses. So mild and balmy it has not been before. 10 p.m., −14° Fahr. (−25·6° C.).

"Tuesday, April 16th. As we were about to start off at 1 o'clock yesterday morning, 'Baro' sneaked away before we could harness him; he had seen a couple of the other dogs being put to, and knew what was coming. As I did not wish to lose the dog—he was the best I had in

* I felt convinced we could not have reached such a westerly longitude, but assumed this for the sake of certainty, as I would rather come down on the east side of Franz Josef Land than on the west side. Should we reach the latitude of Petermann's Land or Prince Rudolf Land without seeing them, I should in the former case be certain that we had them on our west, and could then look for them in that direction, whereas, in the event of our not finding land and being uncertain whether we were too far east or too far west, we should not then know in what direction we ought to look for it.

my team—this caused some delay. I called and called, and went peering round the hummocks in search of him, but saw nothing, only the ice-pack, ridge upon ridge disappearing towards the horizon, and farthest north the midnight sun shining over all. The world of ice was dreaming in the bright, cool morning light. We had to leave without the dog, but, to my great delight, I soon caught sight of him far behind us in our wake; I thought I had seen his good face for the last time. He was evidently ashamed of himself, and came and stood quite still, looking up at me imploringly when I took him and harnessed him. I had meant to whip the dog, but his eyes disarmed me.

"We found good passable ice, if not always quite flat, and made satisfactory progress. Some ridges, however, forced us west of our course. Later on in the morning I discovered that I had left my compass behind at some place or other where I had had it out to take our bearings. It could not be dispensed with, so I had to return and look for it. I found it, too, but it was a hard pull-back, and on the way I was inconvenienced for the first time by the heat; the sun scorched quite unpleasantly. When I at last got back to the sledges, I felt rather slack; Johansen was sitting on the kayak fast asleep, basking in the sun. Then on again, but the light and warmth made us drowsy and slack, and, try as we would, we seemed to lag; so at ten in the forenoon we decided to camp, and I was not a little

BAKO, THE RUNAWAY.

surprised, when I took the meteorological observation, to find that the swing-thermometer showed — 15·2° Fahr. (— 26·2° C.). The tent was accordingly pitched in the broiling sun, and nice and warm it soon was inside. We had a comfortable Easter dinner, which did service for both Easter Day and Easter Monday. I reckon the distances we covered on Easter Eve and yesterday at about 15 miles, and we should thus be altogether 60 miles on our way home.

"Wednesday, April 17th. — 18·4° Fahr. (— 28° C.) Yesterday, without doubt, we did our longest day's march. We began at half-past seven in the morning, and ended at about nine at night, with a couple of hours' rest in the bag at dinner-time. The ice was what I should previously have called anything but good; it was throughout extremely uneven, with pressed-up, rather new ice and older, rounded-off ridges. There were ridges here and there, but progress was possible everywhere, and by lanes, happily, we were not hindered. The snow was rather loose between all the irregularities of the ice; but the dogs hauled alone everywhere, and there is no cause to complain of them. The ice we are now stopping in seems to me to be something like that we had around the *Fram*. We have about got down to the region where she is drifting. I am certain we did 20 miles yesterday, and the distance homewards should now be altogether 368 miles.

"The weather is glorious nowadays, not so cold as

to inconvenience one, and continual clear sunshine without any wind to signify. There is remarkable equableness and stagnancy in the atmosphere up here, I think. We have travelled over this ice for upwards of a month now, and not once have we been stopped on account of bad weather—the same bright sunshine the whole time, with the exception of a couple of days, and even then the sun came out. Existence becomes more and more enjoyable; the cold is gone, and we are pressing forward towards land and summer. It is no trial now to turn out in the mornings, with a good day's march before one, and cook, and lie snug and warm in the bag and dream of the happy future when we get home. Home. . . .?

"Have been engaged on an extensive sartorial undertaking to-day; my trousers were getting the worse for wear. It seems quite mild now to sit and sew in −18° Fahr. in comparison with −40° Fahr. Then certainly it was not enjoyable to ply one's needle.

"Friday, April 19th. We now have provender for the dogs for two or three days more, but I think of saving it a little longer and having the worst dogs eaten first. Yesterday 'Perpetuum' was killed. This killing of the animals, especially the actual slaughtering, is a horrible affair. We have hitherto stuck them with a knife, but it was not very satisfactory. Yesterday, however, we determined to try a new method: strangulation. According to our usual custom, we led the dog away

behind a hummock, so that the others should not know what was going on. Then we put a rope round the animal's neck, and each pulled with all his might, but without effect, and at last we could do no more. Our hands were losing all sense of feeling in the cold, and there was nothing for it but to use the knife. Oh, it was horrible! Naturally, to shoot them would be the most convenient and merciful way, but we are loath to expend our precious ammunition on them; the time may come when we shall need it sorely.

"The observations yesterday show that we have got down to 85° 37·8′ N., and the longitude should be 79° 26′ E. This tallies well with our reckoning. We have gone 50 miles or so since the last observation (April 13th), just what I had assumed beforehand.

"Still the same brilliant sunshine, day and night. Yesterday the wind from the north freshened, and is still blowing to-day, but does not trouble us much, as it is behind us. The temperature, which now keeps from about 4° to 22° below zero (Fahr.), can only be described as agreeable. This is undoubtedly fortunate for us; if it were warmer, the lanes would keep open a longer time. My greatest desire now is to get under land before the lanes become too bad. What we shall do then must be decided by circumstances.

"Sunday, April 21st. At 4 o'clock yesterday we got under way. During the night we stopped to have something to eat. These halts for dinner, when we

take our food and crawl well down to the bottom of the bag, where it is warm and comfortable, are unusually cosy. After a good nap we set off again, but were soon stopped by the ugliest lane we have yet come across. I set off along it to find a passage, but only found myself going through bad rubble. The lane was everywhere equally broad and uncompromising, equally full of aggregated blocks and brash, testifying clearly to the manner in which, during a long period, the ice here has been in motion and been crushed and disintegrated by continual pressure. This was apparent, too, in numerous new ridges of rubble and hummocky ice, and the cracks running in all directions. I finally found a crossing, but when, after a long circuit, I had conveyed the caravan there, it had changed in the interval, and I did not think it advisable to make the attempt. But though I went 'farther than far,' as we say, I only found the same abominable lane, full of lumps of ice, grinning at one, and high pressure-ridges on each side. Things were becoming worse and worse. In several cases these lumps of ice were, I noticed, intermixed with earthy matter. In one place, the whole floe, from which blocks had been pressed up into a ridge, was entirely dark brown in colour, but whether this was from mud or from organic matter I did not get near enough to determine. The ridges were fairly high in some places, and reached a height of 25 feet or so. I had a good opportunity here

REST. APRIL, 1895.

(By H. Egidius, from a photograph.)

of observing how they assume forms like ice-mountains with high, straight sides, caused by the splitting of old ridges transversely in several directions. I have often on this journey seen massive high hummocks with similar square sides, and of great circumference, sometimes quite resembling snow-covered islands. They are of 'palæocrystic ice,' as good as any one can wish.*

"I was constrained at last to return with my mission unaccomplished. Nearly the most annoying thing about it was that on the other side of the lane I could see fine flat ice stretching southwards—and now to be obliged to camp here and wait! I had, however, already possessed my soul in patience, when, on coming back to our original stopping-place, I found a tolerably good crossing close by it. We eventually got the other side, with the ice grinding under our feet the while, and by that time it was 6 o'clock in the morning. We kept at it a little while longer over beautiful flat ice, but the dogs were tired, and it was nearly 48 hours since they had been fed. As we were hastening along we suddenly came across an immense piece of timber sticking up obliquely from the surface of the ice. It was Siberian larch as far as I could make out, and probably raised in this manner through pressure long ago. Many a good

* We saw no real ice-mountains at any period of our journey before we got under land; everything was sea-ice. The same was the case during the drift of the *Fram*.

meal could we have cooked with it had we been able to drag it with us, but it was too heavy. We marked it 'F. N., H. J., 85° 30′ N.,' and went on our way.

"Plains of ice still before us. I am looking forward to getting under way. Gliding over this flat surface on one's snowshoes almost reaches the ideal; land and

JOHANSEN CARVING OUR NAMES IN A STOCK OF DRIFT-WOOD.

home are nigher, and as one goes along one's thoughts fly southwards to everything that is beautiful. Six in the morning, — 22° Fahr. (— 30° C.).

"Monday, April 22nd. If we have made good progress the previous days, yesterday simply outdid itself. I think I may reckon our day's march at 25 miles, but,

for the sake of certainty, lump the two last days together, and put them down at 40 miles. The dogs, though, are beginning to get tired; it is approaching the time for us to camp. They are impatient for food, and, grown more and more greedy for fresh dog's flesh, throw themselves on it like wolves as soon as a smoking piece, with hair and all on is thrown to them. 'Kvik' and 'Barnet' only still keep back as long as the flesh is warm, but let it become frozen, and they eat it voraciously. Twelve midnight, — 27·8° Fahr. (— 33·3° C.).

"Friday, April 26th. — 24·7° Fahr. (— 31·5° C.). Minimum temperature, — 32° Fahr. (— 35·7° C.). I was not a little surprised yesterday morning when I suddenly saw the track of an animal in the snow. It was that of a fox, came about W.S.W. true, and went in an easterly direction. The trail was quite fresh. What in the world was that fox doing up here? There were also unequivocal signs that it had not been entirely without food. Were we in the vicinity of land? Involuntarily I looked round for it, but the weather was thick all day yesterday, and we might have been near it without seeing it. It is just as probable, however, that this fox was following up some bear. In any case, a warm-blooded mammal in the eighty-fifth parallel! We had not gone far when we came across another fox-track; it went in about the same direction as the other, and followed the trend of the lane which had stopped us, and by which we had been obliged to camp. It is

incomprehensible what these animals live on up here, but presumably they are able to snap up some crustacean in the open waterways. But why do they leave the coasts? That is what puzzles me most. Can they have gone astray? There seems little probability of that. I am eager to see if we may not come across the trail of a bear to-day. It would be quite a pleasure, and it would seem as if we were getting nearer inhabited regions again. I have just pricked out our course on the chart according to our bearings, calculating that we have gone 75 miles in the four days since our last observation, and I do not think this can be excessive. According to this, it should not be much more than 150 miles to Petermann's Land, provided it lie about where Payer determined it. I should have taken an observation yesterday, but it was misty.

"At the end of our day, yesterday, we went across many lanes and piled-up ridges; in one of the latter, which appeared to be quite new, immense pieces of fresh-water ice had been pressed up. They were closely intermixed with clay and gravel, the result of infiltration, so that at a distance the blocks looked dark brown, and might easily be taken for stone; in fact, I really thought they were stone. I can only imagine that this ice is river-ice, probably from Siberia. I often saw huge pieces of fresh-water ice of this kind farther north, and even in latitude 86° there was clay on the ice.

"Sunday, April 28th. We made good way yester-

PECULIAR ICE STRATIFICATION. APRIL, 1895.

day, presumably 20 miles. We began our march about half-past three in the afternoon the day before yesterday, and kept at it till yesterday morning. Land is drawing nigh, and the exciting time beginning, when we may expect to see something on the horizon. Oh, how I am longing for land, for something under one's feet that is not ice and snow; not to speak of something to rest one's eyes on. Another fox-track yesterday; it went in about the same direction as the previous ones. Later in the day 'Gulen' gave in; it seemed to be a case of complete exhaustion, he could hardly stand on his legs, reeled over, and when we placed him on one of the loads he lay quite still without moving. We had already decided to kill him that day. Poor beast, faithfully he worked for us, good tempered and willing to the end, and then for thanks, when he could do no more, to be killed for provender! He was born on the *Fram* on December 13th, 1893, and, true child of the polar night, never saw aught but ice and snow.

"Monday, April 29. — 4° Fahr. (— 20° C.). We had not gone far yesterday when we were stopped by open water—a broad pool or lane which lay almost straight across our course. We worked westwards alongside it for some distance, until it suddenly began to close violently together at a place where it was comparatively narrow. In a few minutes the ice was towering above us, and we got over by means of the noisy pressure-

ridge, which was thundering and crashing under our feet. It was a case of bestirring ourselves and driving dogs and sledges quickly over if we did not wish to get jammed between the rolling blocks of ice. This ridge nearly swallowed up Johansen's snowshoes, which had been left behind for a minute while we got the last sledge over. When at last we got to the other side of the lane the day was far spent, and such work naturally deserved reward in the shape of an extra ration of meat-chocolate.

"Annoying as it is to be stopped in the midst of beautiful flat ice by a lane, when one is longing to get on, still, undeniably, it is a wonderful feeling to see open water spread out in front of one, and the sun playing on the light ripples caused by the wind. Fancy open water again, and glittering waves, after such a long time. One's thoughts fly back to home and summer. I scanned in vain to see if a seal's head were not visible above the surface, or a bear along the side. The dogs are beginning now to be very much reduced in strength and are difficult to urge on. 'Barnet' was quite done (he was killed this evening), and several of the others are very jaded. Even 'Baro,' my best dog, is beginning to cool in his zeal, to say nothing of 'Kvik'; perhaps I ought to cater a little more generously for them. The wind which was about south-east in the morning subsequently went over to an easterly direction, and I expect, to use Pettersen's customary expression on board for a good south-easter which drove us northwards to some purpose,

'a regular devil of a hiding.' I am only surprised the temperature still seems low. I had noticed a thick bank of clouds for a long time along the horizon in the south and south-west, and thought that this must mean land. It now began to grow higher and come nearer us in a suspicious manner. When, after having had dinner we crept out of the bag, we saw that the sky was entirely clouded over; and that the 'devil of a hiding' had come we felt when we went on.

"I saw another fox-track yesterday; it was almost effaced by the snow, but went in about the same direction as the others. This is the fourth we have come across, and seeing so many of them make me begin to believe seriously in the proximity of land. Yes, I expect to see it every minute; perhaps, though, it will be some days yet.*

"Tuesday, April 30th. — 6·7° Fahr. (— 21·4° C.). Yesterday, in spite of everything, was a bad day. It began well, with brilliant sunshine; was warm (4° below zero Fahr.), and there, bathed in the slumbering sunlight and alluring us on, were stretches of beautiful flat ice. Everything tended to predict a good day's work; but, alas, who could see the ugly dark cracks which ran right across our course, and which were destined to make life a burden to us. The wind had

* In point of fact it was nearly three months (till July 24th) before this marvel happened.

packed the snow well together, and made the surface firm and good, so that we made rapid progress ; but we had not gone far before we were stopped by a lane of entirely open water which stretched right across our course. After following it some little distance we eventually found a way across.* Not long afterwards we met with another lane running in about the same direction. After a fairly long détour we got safely over this too, with the minor misfortune that three dogs fell into the water. A third lane we also got over, but the fourth was too much for us altogether. It was broad, and we followed it a long way in a westerly direction, but without finding a suitable crossing. Then I continued some three or four miles alone to scan the country, but as I could see no chance of getting over, I returned to Johansen and the sledges. It is a fruitless task this following a lane running at right angles to one's course. Better to camp and make one's self some good pemmican soup, à la Julienne (it was highly delectable), and then give one's self up to sleep, in the hope of better things in the future. Either the lanes will close together again, or they will freeze now that it is tolerably cold. The

* As on the previous day, the ice on the north side of the lane was moving westwards, in comparison with that on the south side. The same thing was the case, or could be seen to have been so, with the lanes we met with later in the day. We naturally conceived this to mean that there was a strong westerly drift in the ice northward, while that southward was retained by land.

Moon-Ring with Mock Moons, and a Suggestion of Horizontal Axes, 24th November 1893. Pastel Sketch.

An inverted arch above forms a tangent to the uppermost point of the moon-ring. Luminous patches are visible where the moon-ring and the vertical axis passing through the moon intersect the horizon.

weather is quiet, so it is to be hoped new ones will not form.* If it keep like this during the days we require to reach land, it will be a good thing; when once we are on land as many lanes may form as they like. Should matters become too bad before that time, there is nothing for us to do but to mend and patch our kayaks. As they are now they will not float. The continual capsizing of the sledges has cut holes in many places, and they would fill the instant they were put on the water."

I ought perhaps to explain here that I had deferred mending the kayaks as long as possible. This was partly because the work would take a long time, and the days were precious, now that it was a question of gaining land before the ice became impracticable; partly, too, because, in the temperature we now had, it would have been difficult to do the work properly; and also because the chances were that they would soon get holes in them again from being upset. In addition to this I was undesirous of crossing lanes at present; they were still covered with young ice which it would have been difficult to break through, even had it been possible to protect the bows of the kayaks from being cut, by means of a plate of German silver and some extra canvas. As I have mentioned before, not the least drawback was the

* The lanes form most frequently in windy weather, as the ice is then set in motion.

fact that any water entering the kayak's would immediately have frozen and have been impossible to remove, thus increasing the weight of our loads at each crossing. It was undoubtedly a better plan to go round, even if the way was long, than to incur the hindrances and casualties that the other alternative would, most probably, have occasioned.

To continue quoting from my diary for the same day I write :—" The dogs were at one of our precious pemmican grips last night ; they have torn off a corner of the bag and eaten some of its contents, but happily not much. We have been fortunate inasmuch as they have let the provisions alone hitherto ; but now hunger is becoming too much for them and nature is stronger than discipline."

" Wednesday, May 1st. — 12·6° Fahr. (— 24·8° C.). I 'half-soled' my Finn shoes to-day with sail-cloth, so I hope they will last a while ; I feel as if I could hold my own again now. I have two pairs of Finn shoes, so that for once one pair can be dried in the sun. They have been wet the whole way and it has made them the worse for wear."

The ice was now growing very bad again and our marches shorter. On Friday, May 3rd, I write in my diary :—" We did not do so good a day's work yesterday as we expected, although we made some progress. The ice was flat and the going good at one time, and we kept steadily at it for four hours or so ; but then came several

reaches with lanes and rubble-ice, which, however, we managed to pull through, though the ice was often packing under our feet. By degrees the wind from the south-east increased, and while we were having dinner it veered round to an easterly direction and became rather strong. The ice, too, grew worse, with channels and rubble, and when the wind reached a velocity of 29 to 33 feet in the second, and a driving snowstorm set in, completely obliterating everything around us, stumbling along through it all became anything but attractive. After being delayed several times by newly-formed rubble, I saw that the only sensible thing to be done was to camp, if we could find a sheltered spot. This was easier said than done, as the weather was so thick we could hardly see anything, but at last we found a suitable place, and well content to be under shelter, ate our 'fiskegratin,' and crept into the bag, while the wind rattled the tent-walls and made drifts round us outside. We had been constrained to pitch our tent close beside a new ridge, which was hardly desirable, as packing might take place, but we had no choice; it was the only lee to be found. Before I went to sleep the ice under us began to creak, and soon the pressure-ridge behind us was packing with the well known jerks. I lay listening and wondering whether it would be better for us to turn out before the ice-blocks came tumbling upon us, but as I lay listening I went fast asleep and dreamed about an earth-

quake. When I woke up again, some hours afterwards, everything was quiet except the wind, which howled and rattled at the tent walls, lashing the snow up against them.

"Yesterday evening Potifar was killed. We have now sixteen dogs left; the numbers are diminishing horribly, and it is still so far to land. If only we were there!"

"Saturday, May 4. Did fourteen miles yesterday; but the lanes become worse and worse. When we got under way in the afternoon—after having re-loaded my sledge and kayak, and re-adjusted the dunnage under Johansen's kayak—the wind had fallen, and it was snowing quietly and silently, with big flakes, just as it does on a winter day at home. It was bad in one way, however, as in such a light it is difficult to see if the lie of the ground is against or with us; but the going was fairly good, and we made progress. It was heavenly to work in this mild weather, + 11·8° Fahr. (−11·3° C.), and be able to use one's frost-bitten hands bare, without suffering torture untold every time they came in contact with anything.

"Our life, however, was soon embittered by open water-ways. By means of a circuitous route, and the expenditure of much valuable time, we at last succeeded in getting over them. Then came long stretches of good ice, and we went cheerfully on our way; bye-and-bye, too, the sun peeped out. It is wonderful what such encouragement does for one. A little while ago,

when I was ploughing alongside a horrible lane, through rubble and over ridges, without a sign of any means of getting on, I was ready to sink from exhaustion at every step; no pleasure then could compare with that of being able to crawl into the bag; and now, when luck again sheds her smiles on one and progress is before one, all weariness is suddenly dissipated.

"During the night the ice began to be bad in earnest, lane after lane, the one worse than the other, and they were only overcome by deviations and intricate by-ways. It was terrible work, and when the wind increased to a good 'mill-breeze' matters became desperate. This is indeed toil without ceasing; what would I not give to have land, to have a certain way before me, to be able to reckon on a certain day's march and be free from this never-ending anxiety and uncertainty about the lanes. Nobody can tell how much trouble they may yet cause us, and what adversities we may have to go through before we reach land; and meanwhile the dogs are diminishing steadily. They haul all they can, poor things, but what good does it do? I am so tired that I stagger on my snowshoes, and when I fall down, only wish to lie there to save myself the trouble of getting up again. But everything changes, and we shall get to land in time.

"At five this morning we came to a broad lane, and as it was almost impossible to get the dogs on any further, we camped. Once well down in the bag with a

pot of savoury-smelling lobscouse in front of one, a feeling of well-being is the result, which neither lanes nor anything else can disturb.

"The ice we have gone through has, on the whole, been flat, with the exception of the newly formed lanes and rubble. These appear, however, for the most part in limited stretches, with extensive flat ice between, as yesterday. All the channels seem in the main to go in the same direction, about straight across our course with a little deflection towards the south-west. They run about north-east to west-south-west (by compass). This morning the temperature had again sunk to + 0·1° Fahr. (— 17·8 C.), after having been up at + 12·2° Fahr. (— 11° C.), and therefore I am still in hopes that the water may freeze within a reasonable time. Perhaps it is wrong of us to curse this wind, for on board the *Fram* they are rejoicing that a south-easter has at last sprung up. However, in spite of our maledictions, I am really glad for their sake, although I could wish it deferred till we reach land."

"Wednesday, May 8th. The lanes still appear regularly in certain places, as a rule where the ice is very uneven, and where there are old and new ridges alternately; between these places there are long flat stretches of ice without lanes. These are often perfectly even, almost like 'inland ice.' The direction of the lanes is, as before, very often athwart our course, or a little more south-westerly. Others, again, seem to go in about the same direction as we do. This ice is extra-

ordinary, it seems to become more and more even as we approach land, instead of the contrary as we expected. If it would only keep so! It is considerably flatter than it was about the *Fram* it seems to me. There are no really impracticable places, and the irregularities there are seem to be of small dimensions—rubble-ice and so forth—no huge mounds and ridges as we had farther north. Some of the lanes here are narrow and so far new that the water was only covered with brash. This can be deceptive enough ; it appears to be even ice, but thrust your staff in, and it goes right through and into the water."

"This morning I made out our latitude and longitude. The former was (Sunday, May 5th) 84° 31′ N., and the latter 66° 15′ E. We were not so far south as I expected, but considerably farther west. It is the drift which has put us back and westwards. I shall, therefore, for the future, steer a more southerly course than before, about due south (true), as we are still drifting westwards, and, above everything, I am afraid of getting too far in that direction. It is to be hoped that we shall soon have land in sight, and we shall then know where to steer. We undoubtedly ought to be there now."

"No dog was killed yesterday, as there were two-thirds left of 'Ulenka' from the previous day, which provided an abundant repast. I now only intend to slaughter one every other day, and perhaps we shall soon come across a bear."

"Tuesday, May 9th. + 9° F. (−13·3° C.). Yesterday was a fairly good day. The ice was certainly not first-rate, rather rubbly, and the going heavy, but all the same we are making steady way forwards. There were long, flat stretches every now and then. The weather had become quite fine when we got under way, about 3 o'clock this morning. The sun was shining through light cumulus clouds. It was hard work, however, making head against the ice, and soon the fog came down with the wind, which still blew from the same direction (N.N.E.).

"The work of hauling becomes heavier and heavier for the dogs, in proportion as their numbers diminish. The wooden runners, too (the under-runners), do not seem to ride well. I have long thought of taking them off, and to-day really decided to try the sledges without them. In spite of everything the dogs keep a very even pace, with only a halt now and then. Yesterday there were only four dogs for my sledge. One of them, 'Flint,' slipped his harness and ran away, and we did not get hold of him again before the evening, when he was killed by way of punishment. The ice was all along more uneven than it has been the last few days. In the afternoon the weather thickened, and the wind increased till, at about 3 o'clock, a regular snowstorm was raging. No way was to be seen, only whiteness everywhere, except in places where the pointed blue ice from the ridges stuck up through the snow-drifts. After a while the ice grew

worse, and I went headlong on to ridges and irregularities without even seeing them. I hoped this was only rough ice which we should pass through, but matters did not improve, and we thought there was no sense in going on. Luckily we had just then dropped on a good sheltered camping-ground ; otherwise it would have been difficult enough to find one in such weather, where nothing could be discerned. Meanwhile we are getting southwards, and are more and more surprised at not seeing signs of land. We reckon now to have left the eighty-fourth parallel behind us.

"Friday, May 10th. + 16·2° Fahr. (— 8·8° C.). Our life has many difficulties to combat. Yesterday promised to be a good day, but thick weather hindered our advance. When we crept out of the tent yesterday forenoon it was fine, the sun was shining, the going was unusually good, and the ice appeared to be unusually even. We had managed in the snowstorm of the previous evening to get into a belt of foul ice, which was merely local. Before we started we thought of taking the removable wooden runners off the sledges, but on trying mine beforehand, found that it ran well as it was. I decided, therefore, to wait a little longer, as I was afraid that removing the wooden runners might weaken the sledge. Johansen, meanwhile, had taken them off the middle sledge, but as we then discovered that one of the birch runners had split right across under one of the uprights, there was nothing for

it but to put it on again. It was a pity, though; as the sledge would have run much better on the newly-tarred runners than on the scratched under-runners. We made fairly good progress, in spite of there only being thirteen dogs left—four to my sledge,

"WE MADE FAIRLY GOOD PROGRESS."

four to the birch sledge, and five to Johansen's. But later in the afternoon the weather thickened rapidly and snow began to fall which prevented our seeing anything before us. The ice, however, was fairly even, and we kept going. We came across a lane, but this

we crossed by means of a détour. Not long afterwards again we got among a number of abominable pressure-ridges, and ran right into high mounds and over steep brinks without seeing them. Wherever one turned there were sudden drops and pitfalls, although everything looked so fair and even under its covering of still-falling snow. As there seemed to be little good in continuing, we decided to camp, have our dinner of savoury hot lobscouse, make out our longitude, and then pass the time until it should clear again; and if this did not take place soon, then have a good sleep and be ready to get under way as soon as the weather should permit. After having slept for a couple of hours (it was 1 o'clock in the morning), I turned out of the tent and was confronted with the same thick, overcast weather, with only a strip of clear blue sky down by the horizon in the south-west, so I let Johansen sleep on and reckoned out our longitude, which proved to be 64° 20′ E. We have drifted considerably westwards since I last made it out, if my calculations be right. While I was thus occupied I heard a suspicious gnawing noise outside in the direction of the kayaks. I listened, and—quite right—it was the dogs up in Johansen's kayak. I ran out, caught 'Haren,' who was just lying gnawing at the portions of fresh dogs'-flesh destined for to-morrow's consumption, and gave him a good thrashing for his pains. The casing over the opening in the kayak was then properly secured and snowshoes and sticks piled on.

"The weather is still the same, overcast and thick; but the wind has veered round to a more southerly direction and the clear strip of blue sky in the south-west has risen a little higher from the ice-margin—can there be a west wind in prospect? Welcome, indeed, would it be, and longing were the glances I directed towards that blue strip—there lay sunshine and progress; perhaps, even, land was beneath it. I could see the cumulus clouds sailing through the blue atmosphere, and thought if only we were there, only had land under us, then all our troubles would sink into oblivion. But material needs must not be forgotten, and, perhaps, it would be better to get into the bag and have a good sleep while waiting. Many times in the morning did I peep out of the tent, but always saw the same cloudy sky and the same white prospect wherever the eye turned. Down in the west and south-west was always the same strip of clear blue sky, only that now it was lower again. When we, at last, turned out in the forenoon, the weather was just the same, and the azure strip on the horizon in the south-west was still there. I think it must have something to do with land, and it gives me hope that this may not be so far off. It is a tougher job than we thought, this gaining land, but we have had many enemies to make headway against—not only foul ice and bad going, but also wind, water, and thick weather—all of them equally obdurate adversaries to overcome."

"Sunday, May 12th. + 0·6° Fahr. (— 17·5° C.).

Yesterday we had a better time than we expected. Overcast and thick it was the whole time, and we felt our way rather than saw it. The ice was not particularly good either, but we pressed onwards, and had the satisfaction now and then of travelling over several long stretches of flat ice. A couple of channels which had partly opened, hindered us somewhat. Curiously enough the strip of clear sky was still there in the S.S.W. (true), and as we went along, rose higher in the heavens. We kept expecting it to spread, and that the weather would clear; we needed it sorely to find our way; but the strip never rose any higher, and yet remained there equally clear. Then it sank again, and only a small rim was left visible on the margin of the sky. Then this also disappeared. I cannot help thinking that this strip must have had something to do with land. At 7 o'clock this morning we came to a belt of ice as bad, almost, as I have ever seen it, and as I thought it unadvisable to make an onslaught in such thick weather, we encamped. I hope we did our 14 miles, and can reckon on only 90 more to land, if it lie in 83° latitude. The ice is undoubtedly of a different character from what it was previously: it is less even, and old lanes and new ones, with ridges and rubble, are more frequent, all seeming to point to the vicinity of land.

"Meanwhile time is going, and the number of dogs diminishing. We have now twelve left; yesterday 'Katta' was killed. And our provisions are also gradually

on the decrease, though, thank Heaven, we have a good deal remaining. The first tin of petroleum ($2\frac{1}{2}$ gallons) came to an end three days ago, and we shall soon have finished our second sack of bread. We do nothing but scan the horizon longingly for land, but see nothing, even when I climb up on to the highest hummocks with the telescope.

"Monday, May 13th. $+8{\cdot}6°$ Fahr. ($-13°$ C.); minimum $+6{\cdot}6°$ Fahr. ($-14{\cdot}2°$ C.) This is, indeed, a toilsome existence. The number of the dogs and likewise their hauling powers, diminish by degrees, and they are inert and difficult to urge on. The ice grows worse and worse as we approach land, and is, besides, covered with much deeper and looser snow than before. It is particularly difficult to get on in the broken-up ice, where the snow, although it covers up many irregularities, at the same time lets one sink through almost up to one's thighs between the pieces of ice, as soon as one takes one's snowshoes off to help the sledge. It is extremely tiring and shaky on this sort of surface to use one's snowshoes not firmly secured to the feet, but one cannot have them properly fastened on when one has to help the dogs at any moment, or pull and tug at these eternal sledges. I think in snow such as this Indian snow-shoes would be preferable, and I only wish I had some. Meanwhile, however, we covered some ground yesterday, and if I reckon 20 miles for yesterday and to-day together I do not think I shall be very far out. We should thus have

only about 50 miles to the 83rd parallel and the land which Payer determined. We are keeping a somewhat southerly course, about due south (true), as this continual east wind is certainly driving us westwards, and I do not like the idea of drifting west past land. It is beginning to be tolerably warm inside the bag at night now, and last night I could hardly sleep for heat."

"Tuesday, May 14th. + 6·8° Fahr. (— 14° C.). Yesterday was a cosy day of rest. Just as we were about to get under way after breakfast it clouded over, and a dense snow-storm set in, so that to start out in such weather, in the uneven ice we have now before us, would not have been worth while. I therefore made up my mind to halt for the time being and get some trifles done, and in particular the shifting of the load from the birch-sledge on to the two others, and so at last get rid of this third sledge, for which we can no longer spare any dogs. This took some time, and as it was absolutely necessary to do it, we lost nothing by stopping for a day.

"We had now so much wood from the sledge, together with broken snowshoe staves and the results of other casualties, that I thought we should be able to use it as fuel for some time to come, and so save the petroleum. We accordingly made a fire of it to cook the supper with, contrived a cooking-pot out of the empty petroleum tin, and hung it over in the approved fashion. At the first start-off we lighted the fire just outside the tent-door but soon gave that up, as, for the first thing, we nearly

burned up the tent, and, secondly, the smoke came in till we could hardly see out of our eyes. But it warmed well and looked wonderfully cheerful. Then we moved it farther off, where it could neither burn up the tent, nor smoke us out; but therewith all the joy of it was departed. When we had about burned up the whole sledge and succeeded in getting a pot of boiling water, with the further result of having nearly melted through the floe on which we were living, I gave up the idea of cooking with sledges and went back to our trusty friend the 'Primus,' and a sociable and entertaining friend, too, which one can have by one's side as one lies in the bag. We have as much petroleum, I should imagine, as we shall require for the journey before us, and why bother about anything else? If the petroleum should come to an end too soon, why, then we can get as much train-oil from bear and seal and walrus as we shall require. I am very anxious to see the result of our reloading. Our two kayak sledges have undoubtedly become somewhat heavier, but then we shall have six dogs to each as long as they last. Our patience has been rewarded at last with the most brilliant sunshine and sparkling sky. It is so warm in the tent that I am lying basking in the heat. One might almost think one's self under an awning on a summer's day at home. Last night it was almost too warm to sleep."

The ice kept practicable to a certain extent during

these days, though the lanes provided us with many an obstacle to overcome. Then, in addition to this, the dogs' strength was failing, they were ready to stop at the slightest unevenness, and we did not make much way. On Thursday, May 16th, I write in my diary: "Several of the dogs seem to be much exhausted. 'Baro' (the leader of my team) gave in yesterday. He could hardly move at last, and was slaughtered for supper. Poor animal. He hauled faithfully to the end.

"It was Johansen's birthday yesterday; he completed his twenty-eighth year, and of course a feast was held in honour of the occasion. It consisted of lobscouse, his favourite dish, followed by some good hot lime-juice grog. The midday sun made it warm and comfortable in the tent. Six a.m. + 3·6° Fahr. (— 15·8° C.).

"Have to-day calculated our latitude and longitude for yesterday, and find it was 83° 36′ N. and 59° 55′ E. Our latitude agrees exactly with what I supposed according to the dead reckoning, but our longitude is almost alarmingly westerly, in spite of the fact that our course has been the whole time somewhat southerly. There appears to be a strong drift in the ice here, and it will be better for us to keep east of the south, in order not to drift past land. To be quite certain, I have again reckoned out our observations of April 7th and 8th, but find no error, and cannot think otherwise than that we are about right. Still it seems remarkable that we

have not yet seen any signs of land. Ten p.m., + 1·4° Fahr. (— 17° C.)."

"Friday, May 17th. + 12·4° Fahr. (— 10·9° C.); minimum — 19° C. To-day is the 'Seventeenth of May'—Constitution Day. I felt quite certain that by to-day, at any rate, we should have been on land somewhere or other, but fate wills otherwise; we have not even seen a sign of it yet. Alas! here I lie in the bag, dreaming day-dreams and thinking of all the rejoicings at home, of the children's processions and the undulating mass of people at this moment in the streets. How welcome a sight to see the flags, with their red bunting, waving in the blue spring atmosphere, and the sun shining through the delicate young green of the leaves. And here we are in drifting ice, not knowing exactly where we are, uncertain as to our distance from an unknown land, where we hope to find means of sustaining life and thence carve our way on towards home; with two teams of dogs whose numbers and strength diminish day by day, and between us and our goal ice and water which may cause us untold trouble, with sledges which now, at any rate, are too heavy for our own powers. We press laboriously onwards mile by mile; and meanwhile, perhaps, the drift of the ice is carrying us westwards out to sea, beyond the land we are striving for. A toilsome life, undeniably, but there will be an end to it some time; some time we shall reach it, and meanwhile our flag for the 'Seventeenth of May' shall wave above the eighty-

third parallel, and if fate send us the first sight of land to-day our joy will be twofold.

"Yesterday was a hard day. The weather was fine, even brilliant, the going splendid, and the ice good, so that one had a right to expect progress were it not for the dogs. They pull up at everything, and for the man ahead it is a continual going over the same ground three times: first to find a way and make a track, and then back again to drive on the dogs; it is slow work indeed. Across quite flat ice the dogs keep up to the mark pretty well, but at the first difficulty they stop. I tried harnessing myself in front of them yesterday, and it answered pretty well; but when it came to finding the way in foul ice it had to be abandoned.

"In spite of everything, we are pushing forward, and eventually shall have our reward; but for the time being this would be ample could we only reach land and land-ice without these execrable lanes. Yesterday we had four of them. The first that stopped us did not cause immoderate trouble; then we went over a short bit of middling ice, though with lane after lane and ridges. Then came another bad lane, necessitating a circuit. After this we traversed some fairly good ice, this time considerably more of it than previously, but soon came to a lane, or rather a pool, of greater size than we had ever seen before, exactly what the Russians would call a 'polynja.' It was covered with young ice too weak to bear.

We started confidently alongside it in a south-westerly direction (true), in the belief that we should soon find a way across; but 'soon' did not come. Just where we expected to find a crossing, an overwhelming sight presented itself to our gaze: the pool stretched away in a south-westerly direction to the very horizon, and we could see no end to it! In the mirage on the horizon, a couple of detached blocks of ice rose above the level of the pool; they appeared to be floating in open water, changed constantly in shape, and disappeared and reappeared. Everything seemed to indicate that the pool debouched right into the sea in the west. From the top of a high hummock I could, however, with the glass see ice on the other side, heightened by the looming. But it was anything but certain that it really was situated at the western end of the pool; more probably, it indicated a curve in the direction of the latter. What was to be done here? To get over seemed for the moment an impossibility. The ice was too thin to bear and too thick to set the kayaks through, even if we should mend them. How long it might take at this time of year for the ice to become strong enough to bear, I did not know, but one day would scarcely do it. To settle down and wait, therefore, seemed too much. How far the pool extended and how long we might have to travel along it before we found a crossing and could again keep to our course no one could tell; but the

CRACK IN THE ICE.
(*From a photograph.*)

probability was a long time, perhaps days. On the other hand, to retreat in the direction whence we came seemed an unattractive alternative: it would lead us away from our goal, and also perhaps necessitate a long journey in an opposite direction before we could find a crossing. The pool extended true S. 50° W. To follow it would undoubtedly take us out of our course, which ought now properly to be east of south; but on the whole this direction was nearest the line of our advance, and consequently we decided to try it. After a short time we came to a new lane running in a transverse direction to the pool. Here the ice was strong enough to bear, and on examining the ice on the pool itself beyond the confluence of this lane I found a belt where the young ice had through pressure been jammed up in several layers. This happily was strong enough to bear, and we got safely over the pool, the trend of which we had been prepared to follow for days. Then on we went again, though in toil and tribulation, until at half-past eight in the evening we again found ourselves confronted by a pool, or lane, of exactly the same description as the former one, with the exception only that this time the view to the 'sea' opened towards the north-east, while in the south-west the sky-line was closed in by ice. The lane also was covered with young ice, which in the middle was obviously of the same age as that on the last pool. Near the edge there was some thicker and older ice, which would bear, and over

which I went on snowshoes to look for a crossing, but found none as far as I went. The strip of ice along the middle, sometimes broad and sometimes narrow, was everywhere too thin to risk taking the sledges over. We consequently decided to camp and wait till to-day, when it is to be hoped the ice will be strong enough to bear. And here we are still, with the same lane in front of us. Heaven only knows what surprises the day will bring.

"Sunday, May 19th. The surprise which the Seventeenth brought us was nothing less than that we found the lanes about here full of narwhals. When we had just got under way, and were about to cross over the lane we had been stopped by the previous day, I became aware of a breathing noise, just like the blowing of whales. I thought at first it must be from the dogs, but then I heard for certain that the sound came from the lane. I listened. Johansen had heard the noise the whole morning, he said, but thought it was only ice jamming in the distance. No, that sound I knew well enough, I thought, and looked over towards an opening in the ice whence I thought it proceeded. Suddenly I saw a movement which could hardly be falling ice, and—quite right—up came the head of a whale; then came the body: it executed the well-known curve, and disappeared. Then up came another, accompanied by the same sound. There was a whole school of them. I shouted that they were whales, and running to the sledge, had my gun out in a second. Then came the adjusting of a

harpoon, and after a little work this was accomplished, and I was ready to start in pursuit. Meanwhile the animals had disappeared from the opening in the ice where I had first seen them, though I heard their breathing from some openings farther east. I followed the lane in that direction, but did not come within range, although I got rather near them once or twice. They came up in comparatively small openings in the ice, which were to be found along the whole length of the lane. There was every prospect of being able to get a shot at them if we stopped for a day to watch the holes; but we had no time to spare, and could not have taken much with us had we got one, as the sledges were heavy enough already. We soon found a passage over, and continued our journey with the flags hoisted on the sledges in honour of the day. As we were going so slowly now that it was hardly possible for things to be worse, I determined at our dinner-hour that I really would take off the under-runners from my sledge. The change was unmistakable: it was not like the same sledge. Henceforth we got on well, and after a while the under-runners from Johansen's sledge were also removed. As we furthermore came on some good ice later in the day, our progress was quite unexpectedly good, and when we stopped at half-past eleven yesterday morning, I should think we had gone 10 miles during our day's march. This brings us down to latitude 83° 20′ or so.

"At last then we have come down to latitudes which have been reached by human beings before us, and it cannot possibly be far to land. A little while before we halted yesterday, we crossed a lane, or pool, exactly like the two previous ones, only broader still. Here, too, I heard the blowing of whales, but although I was not far from the hole whence the noise presumably came, and although the opening there was quite small, I could perceive nothing. Johansen, who came afterwards with the dogs, said that as soon as they reached the frozen lane the dogs got scent of something and wanted to go against the wind. Curious that there should be so many narwhals in the lanes here.

"The ice we are now travelling over is surprisingly bad. There are few or no new ridges, only small older irregularities, with now and then deep snow in between, and then these curious broad, endless lanes, which resemble each other, and run exactly parallel, and are all unlike those we have met before. They are remarkable from the fact that, while formerly I always observed the ice on the north side of the lane to drift westwards in comparison with that which lay on the south side, the reverse was here the case. It was the ice on the south side which drifted westwards.

"As I am afraid that we are continually drifting rapidly westwards, I have kept a somewhat easterly course—S.S.E. or east of that, according as the drift necessitates. We kept the Seventeenth of May—on the 18th it is true

—by a feast of unsurpassed magnificence, consisting of lobscouse, stewed red whortleberries, mixed with vril-food, and stamina lime-juice mead (*i.e.*, a concoction of lime-juice tablets and Frame Food stamina tablets dissolved in water), and then, having eaten our fill, crawled into our bag."

As we gradually made our way southwards, the ice became more impracticable and difficult to travel over. We still came across occasional good flat plains, but they were often broken up by broad belts of jammed-up ice and in a measure by channels which hindered our advance. On May 19th I write: "I climbed to the top of the highest hummock I have yet been up. I measured it roughly, and made it out to be about 24 feet above the ice whence I had climbed up; but as this latter was considerably above the surface of the water, the height was probably 30 feet or so. It formed the crest of quite a short and crooked pressure-ridge, consisting of only small pieces of ice."

That day we came across the first tracks of bears which we had seen on our journey over the ice. The certainty that we had got down to regions where these animals are to be found, and the prospect of a ham, made us very joyous. On May 20th there was a tremendous snow-storm, through which it was impossible to see our way on the uneven ice. "Consequently there is nothing for it but to creep under the cover again and sleep as long as one can. Hunger at last, though, is too much

for us, and I turn out to make a stew of delicious liver 'pâté.' Then a cup of whey drink, and into the bag again, to write or slumber as we list. Here we are, with nothing to do but to wait till the weather changes and we can go on.

"We can hardly be far from 83° 10′ N., and should have gained Petermann's Land if it be where Payer supposed. Either we must be unconscionably out of our bearings, or the country very small. Meanwhile, I suppose, this east wind is driving us westward, out to sea, in the direction of Spitzbergen. Heaven alone knows what the velocity of the drift may be here. Oh well, I am not in the least down-hearted. We still have ten dogs, and should we drift past Cape Fligely, there is land enough west of us, and that we can hardly mistake. Starve we scarcely can; and if the worst should come to the worst, and we have to make up our minds to winter up here, we can face that too—if only there were nobody waiting at home. But we shall get back before the winter. The barometer is falling steadily, so that it will be a case of patience long drawn out, but we shall manage all right."

On the afternoon of the following day (May 21st) we were at last able to get off, though the weather was still thick and snowy, and we often staggered along like blind men. "As the wind was strong and right at our back, and as the ice was fairly even, I at last put a sail to my sledge. It almost went by itself, but did not in

the least change the dogs' pace; they kept the same slow time as before. Poor beasts, they become more and more tired, and the going is heavy and loose. We passed over many newly frozen pools that day, and some time previously there must have been a remarkable quantity of open water.

"I do not think I exceed when I put down our day's march at 14 miles, and we ought to have latitude 83° behind us, but as yet no sign of land. This is becoming rather exciting.

"Friday, May 24th. + 18·8° Fahr. (— 7·4° C.). Minimum — 11·4° C. Yesterday was the worst day we have yet had. The lane we had before us when we stopped the previous day proved to be worse than any of the others had been. After breakfast at 1 a.m., and while Johansen was engaged in patching the tent, I trudged off to look for a passage across, but was away for three hours without finding any. There was nothing for it but to follow the bend of the lane eastwards and trust to getting over eventually; but it turned out to be a longer job than we had anticipated. When we came to the place where it appeared to end, the surrounding ice-mass was broken up in all directions, and the floes were grinding against each other as they tore along. There was no safe passage across to be found anywhere. Where at one moment, perhaps, I might have crossed over, at the next, when I had brought the sledges up, there was only open water. Meanwhile we executed some intricate

manœuvring from floe to floe, always farther east, in order to get round. The ice jammed under and around us, and it was often a difficult matter to get through. Often did we think we were well across, when still worse lanes and cracks in front of us met our disappointed gaze. It was enough sometimes to make one despair.

"There seemed to be no end to it; wherever one turned were yawning channels. On the overcast sky the dark, threatening reflection of water was to be seen in all directions. It really seemed as if the ice was entirely broken up. Hungry and almost tired to death we were, but determined, if possible, to have our troubles behind us before we stopped for dinner. But at last matters came to a hopeless pitch, and at 1 o'clock, after nine hours' work, we decided to have a meal. It is a remarkable fact that, let things be as bad as they may, once in the bag, and with food in prospect, all one's troubles sink into oblivion. The human being becomes a happy animal, which eats as long as it can keep its eyes open, and goes to sleep with the food in its mouth. Oh, blissful state of heedlessness! But at 4 o'clock we had to turn to again at the apparently hopeless task of threading the maze of lanes. As a last drop in our cup of misery, the weather became so thick and shadowless that one literally could not see if one were walking up against a wall of ice or plunging into a pit. Alas, we have only too much of this mist! How many lanes and cracks we went across, how many huge ridges we clambered over,

dragging the heavy sledges after us, I cannot say, but very many. They twisted and turned in all directions, and water and slush met us everywhere.

"But everything comes to an end, and so did this. After another two-and-a-half hours' severe exertion we had put the last lane behind us, and before us lay a lovely plain. Altogether we had now been at this sort of work for nearly twelve hours, and I had, in addition, followed the lane for three hours in the morning, which made fifteen altogether. We were thoroughly done, and wet too. How many times we had gone through the deceptive crust of snow which hides the water between the pieces of ice, it is impossible to say. Once during the morning I had had a narrow escape. I was going confidently along on snowshoes over what I supposed to be solid ice, when suddenly the ground began to sink beneath me. Happily there were some pieces of ice not far off on which I succeeded in throwing myself, while the water washed over the snow I had just been standing on. I might have had a long swim for it through the slush, which would have been anything but pleasant, particularly seeing that I was alone.

"At last we had level ice before us; but, alas, our happiness was destined to be short-lived. From the dark belt of clouds on the sky we saw that a new channel was in prospect, and at eight in the evening we had reached it. I was too tired to follow the trend of the lane (it was not short) in order to find a crossing,

particularly as another channel was visible behind it. It was also impossible to see the ice around one in the heavily falling snow. It was only a question, therefore, of finding a camping-place; but this was easier said than done. A strong north wind was blowing, and no shelter was to be found from it on the level ice we had just got on to. Every mound and irregularity was examined as we passed by it in the snowstorm, but all were too small. We had to content ourselves at last with a little pressed-up hummock, which we could just get under the lee of. Then, again, there was too little snow, and only after considerable work did we succeed in pitching the tent. At last, however, the 'Primus' was singing cheerily inside it, the 'fiskegratin' diffusing its savoury odour, and two happy beings were ensconced comfortably inside the bag, enjoying existence, and satisfied, if not, indeed, at having done a good day's march, yet in the knowledge of having overcome a difficulty.

"While we were having breakfast to-day, I went out and took a meridian altitude, which, to our delight, made us 82° 52′ N.

"Sunday, May 26th. When the ice is as uneven as it is now, the difficulty of making headway is incredible. The snow is loose, and if one takes one's snowshoes off for a moment one sinks in above one's knees. It is impossible to fasten them on securely, as every minute one must help the dogs with the sledges. Added to this, if the weather be thick, as yesterday, one is apt to run into the

largest ridges or snow-drifts without seeing them ; everything is equally white under its covering of new snow, and the light comes from all directions, so that it throws no shadows. Then one plunges in headlong, and with difficulty can get up and on to one's snowshoes again. This takes place continually, and the longer it lasts the worse it gets. At last one literally staggers on one's snowshoes from fatigue, just as if one were drunk. But we are gaining ground, and that is the chief thing, be one's shins ever so bruised and tender. This manner of progress is particularly injurious to the ankles, on account of the constant unsteadiness and swerving of the snowshoes, and many a day have mine been much swollen. The dogs, too, are becoming exhausted, which is worse.

"I have to-day reckoned out the observations made yesterday, and find, to our joy, that the longitude is 61° 27′ E., so that we have not drifted westwards, but have come about south according to our course. My constant fear of drifting past land is thus unfounded, and we should be able to reckon on reaching it before very long. We may possibly be farther east than we suppose, but hardly farther west, so that if we now go due south for a while, and then south-west, we must meet with land, and this within not many days. I reckon that we did 20 miles southwards yesterday, and should thus be now in latitude 82° 40′ N. A couple more days, and our latitude will be very satisfactory.

"The ice we have before us looks practicable, but, to judge by the sky, we have a number of waterways a little farther on; we must manage somehow to fight our way across them. I should be very reluctant to mend the kayaks just now, before we have reached land and firm land ice. They require a thorough overhauling, both as to frames and covers. My one thought now is to get on while we still have some dogs, and thus use them up.

"A comfortable Sunday morning in the tent to-day. These observations put me in good spirits; life seems to look bright before us. Soon we must be able to start homewards at good speed and across open water. Oh, what a pleasure it will be to handle paddle and gun again, instead of this continual toil with the sledges! Then, too, the shouting to the dogs to go on—it seems to wear and tear one's ears and every nerve in one's body.

"Monday, May 27th. Ever since yesterday morning we have seen the looming of water on the sky; it is the same looming that we saw on the previous day, and I set our course direct for the place where, to judge by it, there should be the greatest accumulation of ice, and where, consequently, a crossing should be easiest. During the course of the afternoon we came on one lane after the other, just as the water-sky had denoted, and towards evening the dark heavens before us augured open water of a worse kind. The reflection was particularly dark and

threatening, both in the west and in the east. By 7 o'clock I could see a broad lane before us, stretching away west and east as far as the eye could reach from the highest hummock. It was broad, and appeared to be more impracticable than any of the previous ones. As the dogs were tired, our day's march had been a good one, and we had a splendid camping-place ready to hand, we decided to pitch the tent. Well satisfied and certain that we were now in latitude $82\frac{1}{2}^{\circ}$, and that land must inevitably be near, we disappeared into the bag.

"During breakfast this morning I went out and took a meridian altitude. It proves that we have not deceived ourselves. We are in latitude 82° 30′ N., perhaps even a minute or two farther south. But it is growing more and more remarkable that we see no sign of land. I cannot explain it in any other way than that we are some degrees farther east than we suppose.* That we should be so much farther west as to enable us to pass entirely clear of Petermann's Land and Oscar's Land, and not so much as get a glimpse of them, I consider an impossibility. I have again looked at our former observations; have again gone through our dead reckoning, the velocity and directions of the wind, and

* In point of fact we were then about 6° farther east than we thought. I had on April 14th, it will be remembered (compare my notes for that day), surmised that the longitude I then set down (86° E.) was more westerly than that we were actually in.

all the possibilities of drift during the days which passed between our last certain observation for longitude (April 8th) and the day when, according to the dead reckoning, we assumed ourselves to be in longitude 86° E. (April 13th). That there should be any great mistake is inconceivable. The ice can hardly have had such a considerable drift during those particular days, seeing that our dead reckoning in other respects tallied so well with the observations.

"Yesterday evening 'Kvik' was slaughtered. Poor thing, she was quite worn out, and did little or nothing in the hauling line. I was sorry to part with her, but what was to be done? Even if we should get fresh meat, it would have taken some time to feed her up again, and then, perhaps, we should have had no use for her, and should only have had to kill her after all. But a fine big animal she was, and provided food for three days for our remaining eight dogs.

"I am in a continual state of wonderment at the ice we are now travelling over. It is flat and good, with only smallish pieces of broken-up ice lying about, and a large mound or small ridge here and there, but all of it is ice which can hardly be winter-old, or at any rate has been formed since last summer. It is quite a rarity to come across a small tract of older ice, or even a single old floe which has lain the summer through—so rare, in fact, that at our last camping-place it was impossible to find any ice which had been exposed to the summer sun,

and consequently freed from salt. We were obliged to be content with snow for our drinking-water.* Certain it is that where these great expanses of flat ice come from there was open water last summer or autumn, and that of no little extent, because we passed over many miles of this compact ice the whole day yesterday and a good part of the previous day, besides which there were formerly a considerable number of such tracts in between older, summer-old ice. There is little probability that this should have been formed in the vicinity hereabouts. More probably it has come from farther east or south-east, and was formed in open water on the east side of Wilczek's Land. I believe, consequently, that this must indicate that there can be *not a little open water along the east or north-east coast of Wilczek's Land in the summer or autumn months.*†

* For melting water in the cooker it is better to use ice than snow, particularly if the latter be not old and granular. Newly fallen snow gives little water, and requires considerably more heat to warm it. That part of salt-water ice which is above the surface of the sea, and, in particular, prominent pieces which have been exposed to the rays of the sun during a summer and are thus freed from the greater part of their salt, furnish excellent drinking-water. Some expeditions have harboured the superstition that drinking-water from ice in which there was the least salt was injurious. This is a mistake which cost, for instance, the members of the *Jeannette* expedition much unnecessary trouble, as they thought it imperative to distil the water before they could drink it without incurring the risk of scurvy.

† As will be understood by our later discoveries, my surmises were not quite correct. We really were at that time north or north-east of

"Now followed a time when the lanes grew worse than ever, and we began to toil in grim earnest. Lanes and cracks went crosswise in every direction. The ice was sometimes uneven, and the surface loose and heavy between the irregularities.

"If one could get a bird's-eye view of this ice, the lanes would form a veritable network of irregular meshes. Woe to him who lets himself get entangled in it!

"Wednesday, May 29th. Yesterday I inaugurated a great change, and began with 'komager.' It was an agreeable transition. One's feet keep nice and dry now, and one is furthermore saved the trouble of attending to the Finn shoes* night and morning. They were beginning in this mild temperature to assume a texture like our native 'lefser,' a kind of tough rye-cake. Then, too, one need no longer sleep with wet rags on one's chest and legs to dry them."

That day we saw our first bird: a fulmar (*Procellaria glacialis*).

Wilczek's Land, which seems to be only a little island. Meanwhile there must have been extensive open water the previous autumn where this ice was formed. But when it is shown later how much open water we saw on the north-west coast of Franz Josef Land even in winter, this can easily be imagined.

* Whereas Finn shoes are made of reindeer-skin with the hair on, "komager" are made of under-tanned hide without hair, generally from the ox or bearded seal (*Phoca barbata*), with tops of reindeer-skin. They are strong and waterproof (see description of equipment).

"Thursday, May 30th. At 5 o'clock yesterday morning we set forth with the buoyancy born of the belief that now at last the whole network of lanes was behind us; but we had not gone far before the reflection of new channels appeared in front. I climbed up on to a hummock as quickly as possible, but the sight which met my eyes was anything but enlivening—lane after lane, crossing and recrossing, in front of us and on each side, as far as the eye could reach. It looked as if it mattered little what direction we chose: it would be of no avail in getting out of the maze. I made a long excursion on ahead to see if there might not be a way of slipping through and over on the consecutive flat sheets as we had done before; but the ice appeared to be broken up, and so it probably is all the way to land. It was no longer with the compact, massive polar ice that we had to deal, but with thin, broken-up pack-ice, at the mercy of every wind of heaven, and we had to reconcile ourselves to the idea of scrambling from floe to floe as best we might. What would I not have given at this moment for it to be March, with all its cold and sufferings, instead of the end of May, and the thermometer almost above 32° F.? It was just this end of May I had feared all along, the time at which I considered it of the greatest importance to have gained land. Unhappily my fears proved to be well founded. I almost began to wish that it was a month or more later; the ice would then perhaps be slacker here, with

more open pools and lanes, so that in a measure one could make one's way in a kayak. Well, who could tell? This miserable thin young ice appeared to be utterly treacherous, and there was a water-sky in every direction, but mostly far, far ahead. If only we were there! if only we were under land! Perhaps if the worst should come to the worst, we may be reduced to waiting till over the time when the mild weather and break-up of the ice come in earnest. But have we provisions enough to wait till that time? This was, indeed, more than doubtful. . . . As I stood sunk in these gloomy reflections on the high hummock, and looking southwards over the ice, seeing ridge after ridge, and lane after lane before me, I suddenly heard the well-known sound of a whale blowing from a lane close behind. It was the solution of my troubles. Starve we should not; there are animals here, and we have guns, thank Heaven, and harpoons as well, and we know how to use them. There was a whole school of narwhals in the lane breathing and blowing ceaselessly. As some high ice hid them from view for a great part, I could only see their grey backs, now and then, as they arched themselves over the black surface of the water. I stood a long while looking at them, and had I had my gun and harpoon, it would have been an easy matter to get one. After all, the prospect was not so bad at present; and meanwhile what we had to do was not to mind lanes, but to keep on our course S.W. or S.W. to S. over them, and push on the best

we could. And with that resolution I returned to the sledges. Neither of us, however, had a very firm belief that we should get much farther, and therefore all the more elated did we become as our advance proved by degrees to be tolerably easy, in spite of our exhausted dogs.

"While we were making our way during the morning between some lanes, I suddenly saw a black object come rushing through the air; it was a black guillemot (*uria grylle*), and it circled round us several times. Not long afterwards I heard a curious noise in a south-westerly direction; something like the sound made by a goat's horn when blown on; I heard it many times, and Johansen also remarked it, but I could not make out what it was. An animal, at all events, it must be, as human beings are hardly likely to be near us here.* A little while later a fulmar came sailing towards us and flew round and round just over our heads. I got out my gun, but before I had a cartridge in, the bird had gone again. It is beginning to grow lively here; it is cheering to see so much life, and gives one the feeling that one is approaching land and kindlier regions. Later on I saw a seal on the ice; it was a little ringed seal, which it would have been a satisfaction to capture, but before I had quite made out which it was, it had disappeared into the water.

* It was undoubtedly from seals, which often utter a sound like a protracted "ho."

"At ten o'clock we had dinner, which we shall no longer eat in the bag, in order to save time. We have also decided to shorten our marches to eight hours or so in the day on account of the dogs. At 11 o'clock, after dinner, we started off again, and at three stopped and camped. I should imagine we went seven miles yesterday, or let me say between twelve and fifteen during the last two days; the direction being about south-west; every little counts.

"In front of us on the horizon we have a water-sky, or at any rate a reflection which is so sharply defined and remains so immovable that it must either be over open water or dark land; our course just bears on it. It is a good way off, and the water it is over can hardly be of small extent; I cannot help thinking that it must be under land. May it be so! But between us, to judge by the sky, there seem to be plenty of lanes.

"The ice is still the same nowadays, barely of the previous winter's formation, where it is impossible to find any suitable for cooking. It seems to me that it is here, if possible, thinner than ever, with a thickness of from 2 to 3 feet. The reason of this I am still at a loss to explain.

"Friday, May 31st. It is wonderful; the last day of May—this month gone too without our reaching land; without even seeing it. June cannot surely pass in the same manner—it is impossible that we can have far to go now. I think everything seems to indicate this. The ice becomes thinner and thinner, we see more and

more life around us, and in front is the same reflection of water or land, whichever it may be. Yesterday I saw two ringed seals (*Phoca fœtida*) in two small lanes; a bird, probably a fulmar, flew over a lane here yesterday evening, and at midday yesterday we came on the fresh tracks of a bear and two small cubs, which had followed the side of a lane. There seem to be prospects of fresh food in such surroundings, though, curiously enough, neither of us has any particular craving for it; we are quite satisfied with the food we have; but for the dogs it would be of great importance. We had to kill again last night; this time it was 'Pan,' our best dog. It could not be helped, he was quite worn out and could not do much more. The seven dogs we have left can now live three days on the food he provided.

"This is quite unexpected, the ice is very much broken up here, mere pack-ice, were it not for some large floes or flat spaces in between. If this ice had time to slacken it would be easy enough to row between the floes. Sometimes when we were stopped by lanes yesterday, and I went up on to some high hummock to look ahead, my heart sank within me, and I thought we should be constrained to give up the hope of getting farther; it was looking out over a very chaos of lumps of ice and brash mixed together in open water. To jump from piece to piece in such waters, with dogs, and two heavy sledges following one, is not exactly easy; but by means of investigation and experiment we managed eventually

to get over this lane too, and after going through rubble for a while came upon flat ice again ; and thus it kept on with new lanes repeatedly.

The ice we are now travelling over is almost entirely new ice with occasional older floes in between. It continues to grow thinner; here it is for the greater part not more than 3 feet in thickness, and the floes are as flat as when they were frozen. Yesterday evening, however, we got on to a stretch of old ice on which we are stationed now, but how far it extends it is difficult to say. We camped yesterday at half-past six in the evening and found fresh ice again for the cooker, which was distinctly a pleasant change for the cook. We have not had it since May 25th.* A disagreeable wind from the south, it is true, has sprung up this evening, and it will be hard work going against it ; we have a great deal of bad weather here, it is overcast nearly every day, with wind ; south wind, which above everything is least desirable just now. But what are we to do ? To settle down we have hardly provender enough ; there is nothing for it, I suppose, but to grind on.

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* It was from about 82° 52′ N. south to 82° 19′ N. that we travelled over young ice of this description ; that is to say, there must have been open water over a distance of fully 32 English geographical miles (33′ of latitude). We also found ice of this kind farther south for a long distance, and the open sea must have been considerably greater.

"Took a meridian altitude to-day, and we should be in 82° 21′ N., and still no glimpse of land; this is becoming more and more of an enigma. What would I not give to set my foot on dry land now; but patience, always patience."

CHAPTER VI.

By Sledge and Kayak.

"Saturday, June 1st. So this is June. What has it in store for us? Will not this month either bring us the land we are longing for? Must hope and believe so, though the time is drawing out. Luck, for the matter of that, is a wonderful thing. I expected this morning as little of the day as was well possible; the weather was thick and snowy, and we had a strong contrary wind. It was no better when we came on a lane directly after we started, which appeared to be nearly impassable; everything was dark and dull. However, the day turned out to be better than we expected. By means of a detour to the north-east, I found a passage across the lane and we got on to long flat plains which we went over until quite midday. And from five this afternoon we had another hour and a-half of good ice, but that was the end of it; a lane which ran in several directions cut off every means of advance, and although I spent more than an hour and a-half in looking for a crossing, none

was to be found. There was nothing for it but to camp, and hope that the morrow would bring an improvement. Now the morrow has come, but whether the improvement has come likewise, and the lane has closed more together, I do not yet know. We camped about nine yesterday evening. As usual latterly, after nearly a whole day of dismal snow, it suddenly cleared up as soon as we began to pitch the tent. The wind also went down, and the weather became beautiful, with blue sky and light white clouds, so that one might almost dream oneself far away to summer at home. The horizon in the west and south-west was clear enough, but nothing to be seen except the same water-sky, which we have been steering for, and, happily, it is obviously higher, so we are getting under it. If only we had reached it. Yonder, there must be a change, that I have no doubt of. How I long for that change!

"Curious how different things are. If we only reach land before our provisions give out we shall think ourselves well out of danger; while to Payer it stood for certain starvation if he should have to remain there and not find *Tegethoff* again. But then he had not been roaming about in the drift-ice between 83° and 86° for two months-and-a-half, without seeing a living creature. Just as were going to break up camp yesterday morning, we suddenly heard the angry cry of an ivory gull; there, above us, beautiful and white, were two of them sailing right over our heads. I thought of shooting them, but

it seemed, on the whole, hardly worth while to expend a cartridge apiece on such birds; they disappeared again, too, directly. A little while afterwards we heard them again. As we were lying in the bag to-day, and waiting for breakfast, we suddenly heard a hoarse scream over the tent, something like the croaking of a crow. I should imagine it must have been a gull (*Larus argentatus ?*).

"Is it not curious ? The whole night long, whenever I was awake, did the sun smile in to us through our silken walls, and it was so warm and light that I lay and dreamed dreams of summer far from lanes and drudgery and endless toil. How fair life seems at such moments, and how bright the future ! But no sooner do I turn out at half-past nine to cook, than the sun veils his countenance and snow begins to fall. This happens nearly every day now. Is it because he will have us settle down here and wait for the summer and the slackening of the ice and open water, will spare us the toil of finding a way over this hopeless maze of lanes ? I am loath, indeed, that this should come to pass. Even if we could manage, as far as provisions are concerned, by killing and eating the dogs, and with a chance of game in prospect, our arrival in Spitzbergen would be late, and we might not improbably have to pass the winter there, and then those at home would have another year to wait."

"Sunday, June 2nd. So it is on Whit Sunday that

this book* finishes. I could hardly have imagined that we should still be in the drift-ice without seeing land; but fate wills otherwise and she knows no mercy.

"The lane which stopped us yesterday did not close, but opened wider until there was a big sea to the west of us, and we were living on a floe in the midst of it without a passage across anywhere. So, at last, what we have so often been threatened with has come to pass; we must set to work and make our kayaks seaworthy. But first of all we moved the tent into a sheltered nook of the hummock, where we are lying to, so that the wind does not reach us, and we can imagine it is quite still outside, instead of a regular 'mill-breeze' blowing from the south-west. To rip off the cover of my kayak and get it into the tent to patch it was the work of a very short time, and then we spent a comfortable, quiet Whit Sunday evening in the tent. The cooker was soon going, and we had some smoking hot lobscouse for dinner, and I hardly think either of us regretted he was not on the move; it is undeniably good to make a halt sometimes. The cover was soon patched and ready; then I had to go out and brace up the frame of my kayak, where most of the lashings are slack, and must be lashed over again; this will be no inconsiderable piece of work; there are at least forty of them. However, only a couple of the ribs are split, so

* It was the first diary I used on the sledge-journey.

the framework can easily be made just as good as before. Johansen also took the cover off his kayak, and to-day it is going to be patched.

"When both the frames are put in order and the covers on, we shall be ready to start afresh, and to meet

REPAIRING THE KAYAKS.

every difficulty, be it lanes, pools, or open sea. It will, indeed, be with a feeling of security that we shall set forth, and there will be an end to this continual anxiety lest we should meet with impassable lanes. I cannot conceive that anything now can prevent us from soon reaching

land. It can hardly be long now before we meet with lanes and open water in which we can row. There will be a difficulty with the remaining dogs, however, and it will be a case of parting with them. The dogs' rations were portioned out yesterday evening, and we still have part of 'Pan' for supper; but 'Klapperslangen' must go too. We shall then have six dogs, which, I suppose, we can keep four days, and still get on a good way with them.

"Whitsuntide—there is something so lovely and summer-like in the word. It is hard to think how beautiful everything is now at home, and then to lie here still, in mist and wind and ice. How homesick one grows; but what good does it do? Little Liv will go to dinner with her grandmother to-day; perhaps they are dressing her in a new frock at this very moment! Well, well, the time will come when I can go with her—but when? I must set to work on the lashings, and it will be all right!"

We worked with ardour during the following days to get our kayaks ready, and even grudged the time for eating. Twelve hours sometimes went by between each meal, and our working-day often lasted for twenty four hours. But all the same it took time to make these kayaks fully seaworthy again. The worst of it was that we had to be so careful with our materials, as the opportunities of acquiring more were not immoderately abundant. When, for instance, a rib had to be re-lashed, we could not rip up the old lashing, but had to unwind

it carefully in order not to destroy the line; and when there are many scores of such places to be re-lashed, this takes time. Then, too, several of the bamboo ribs which run along the side of the framework (particularly in Johansen's kayak) were split, and these had wholly or partly to be taken out and new ones substituted, or to be strengthened by lashings and side splints. When the covers were properly patched, and the frames after several days' work again in order, the covers were put on and carefully stretched. All this, of course, had to be done with care, and was not quick work; but then we had the satisfaction of knowing that the kayaks were fully seaworthy, and capable, if need be, of weathering a storm on the way over to Spitzbergen.

Meanwhile the time flew by, our precious time; but then we hoped that our kayaks would render us important assistance, and that we should get on all the quicker in them. Thus, on Tuesday, June 4th, I wrote in my diary:—"It seems to me that it cannot be long before we come to open water or slack ice. The latter is, hereabouts, so thin and broken up, and the weather so summer-like. Yesterday the thermometer was a little below freezing-point, and the snow which fell was more like sleet than anything else; it melted on the tent, and it was difficult to keep things from getting wet inside; the walls dripped if we even went near them. We had abominable weather the whole day yesterday, with falling snow, but for the matter of

that we are used to it; we have had nothing else lately. To-day, however, it is brilliant, clear blue sky, and the sun has just come over the top of our hummock and down into the tent. It will be a glorious day to sit out and work in; not like yesterday, when all one's tackle got wet; it is worst of all when one is lashing, for then one cannot keep the line taut. This sun is a welcome friend; I thought I was almost tired of it before when it was always there; but how glad we are to see it now, and how it cheers one. I can hardly get it out of my head that it is a glorious fresh June morning home by the bay. Only let us soon have water so that we can use our kayaks, and it will not be long before we are home.

"To-day,* for the first time on the whole of this journey, we have dealt out rations for breakfast, both of butter, $1\frac{2}{3}$ ozs., and aleuronate bread, $6\frac{2}{3}$ ozs. We must keep to weights in order to be certain the provisions will last out, and I shall take stock properly of what we have left before we go farther.

"Happiness is, indeed, short-lived. The sun has gone again, the sky is overcast, and snowflakes are beginning to fall.

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* Until this day we had eaten what we required without weighing out rations. It proved that after all we did not eat more than I had originally allowed per day, *i.e.*, 1 kilo. of dried food. We now reduced these day's rations considerably.

"Wednesday, June 5th. Still at the same spot, but it is to be hoped it will not be long before we are able to get off. The weather was fine yesterday after all, and it was summer-like to sit out and work and bask in the sun; and then to look out over the water and the ice, with the glittering waves and snow.

"Yesterday we shot our first game. It was an ivory gull (*Larus eberneus*), which went flying over the tent. There were other gulls here, yesterday, too, and we saw as many as four at once; but they kept at a distance. I went after them once and missed my mark. One cartridge wasted; this must not be repeated. If we had taken the trouble we could easily have got more gulls; but they are too small game, and it is also too early to use up our ammunition. In the pool here I saw a seal, and Johansen saw one too. We have both seen and heard narwhals. There is life enough here, and if the kayaks were in order, and we could row out on the water, I have no doubt we could get something. However, it is not necessary yet. We have provisions enough at present, and it is better to employ the time in getting on, on account of the dogs, though it would be well if we could get some big game, and not kill any more of them until our ice journey is over, and we take to the kayaks for good. Yesterday we had to kill 'Klapperslangen.' He gave twenty-five rations,

CHANNELS IN THE ICE IN SUMMER. JUNE, 1895.

which will last the six remaining dogs four days. The slaughtering was now entirely Johansen's business; he had achieved such dexterity that with a single thrust of my long Lapp knife he made an end of the animal, so that it had no time to utter a sound, and after a few minutes, with the help of the knife and our little axe, he had divided the animal into suitable doles. As I mentioned before, we left the skin and hair on; the former was carefully eaten up, and the only thing left after the dogs' meal was, as a rule, a tuft of hair here and there on the ice, some claws, and, perhaps, a well-gnawed cranium, the hard skull being too much for them.

"They are beginning to be pretty well starved now. Yesterday 'Lilleræven' ate up the toe-strap (the reindeer-skin which is placed under the foot to prevent the snow from balling), and a little of the wood of Johansen's snowshoes which the dog had pulled down on to the ice. The late 'Kvik' ate up her sail-cloth harness, and I am not so sure these others do not indulge in a fragment of canvas now and then.

"I have just reckoned out our longitude according to an observation taken with the theodolite yesterday, and make it to be 61° 16·5′ E.; our latitude was 82° 17·8 N. I cannot understand why we do not see land. The only possible explanation must be that we are farther east than we think, and that the land stretches southwards in that direction, but we cannot have much farther to go now. Just at this moment a bird flew over us

which Johansen, who is standing just outside the tent, took to be a kind of sandpiper.

"Thursday, June 6th. Still on the same spot. I am longing to get off, see what things look like, and have a final solution of this riddle which is constantly before me. It will be a real pleasure to be under way again with whole tackle, and I cannot help thinking that we shall soon be able to use our kayaks in open water. Life would be another thing then! Fancy, to get clear for good of this ice and these lanes, this toil with the sledges, and endless trouble with the dogs, only oneself in a light craft dancing over the waves at play! It is almost too much to think of. Perhaps we have still many a hard turn before we reach it, many a dark hour; but some time it must come, and then—then life will be life again!

"Yesterday at last we finished mending the framework of both kayaks. We rigged up some plaited bamboo at the bottom of each to place the provisions on, in order to prevent them from getting wet in case the kayaks should leak. To-day we have only to go over them again, test the lashings, and brace (support) those that may require it, and finally put the covers on. To-morrow evening I hope we shall get off. This repairing has taken it out of the cord; of our three balls we have rather less than one left. This I am very anxious to keep, as we may require it for fishing and so forth.

"Our various provisions are beginning to dwindle. Weighed the butter yesterday, and found that we only

had 5 lbs. 1 oz. If we reckon our daily ration at $1\frac{1}{3}$ ozs. per man, it will last another 23 days, and by that time we shall have gone a little farther. To-day, for the first time, I could note down a temperature above freezing point, *i.e.*, $+35{\cdot}6°$ Fahr. this morning. The snow outside was soft all through, and the hummocks are dripping. It will not be long now before we find water on the floes. Last night, too, it absolutely rained. It was only a short shower; first of all it drizzled, then came large, heavy drops, and we took shelter inside the tent in order not to get wet—but it was rain, rain! It was quite a summer feeling to sit in here and listen to the drops plashing on the tent-wall. As regards the going, this thaw will probably be a good thing if we should have frost again; but if the snow is to continue as it is now it will be a fine mess to get through among all these ridges and hummocks. Instead of such a contingency, it would be better to have as much rain as possible, to melt and wash the ice clear of snow. Well, well, it must do as it likes. It cannot be long now before it takes a turn for the better—land or open water, whichever it may be.

"Saturday, June 8th. Finished and tried the kayaks yesterday at last, but only by dint of sticking to our work from the evening of the day before yesterday to the evening of yesterday. It is remarkable that we are able to continue working so long at a stretch. If we were at home we should be very tired and hungry, with so many

working hours between meals ; but here it does not seem more than it should be, although our appetites, certainly, are first-rate, and our sleeping powers good. It does not seem as if we were growing weak or sickening for scurvy just yet. As a matter of fact, so far as I know, we are unusually strong and healthy just now and in full elasticity.

"When we tried the kayaks in a little lane just here, we found them considerably leaky in the seams and also in the canvas owing to their rough usage on the way, but it is to be hoped no more so than will be remedied when a little soaking makes the canvas swell out. It will not be agreeable to ferry over lanes and have to put our kayaks dry and leaky on the water. Our provisions may not improbably be reduced to a pulp ; but we shall have to put up with that, too, like everything else.

"And so we really mean to get off to-day, after a week's stay on the same spot. Yesterday the south-east wind set in ; it has increased to-day, and become rather strong, to judge by the whistling round the hummocks outside. I lay here this morning fancying I heard the sound of breakers a little way off. All the lanes about here closed yesterday, and there was little open water to be seen. It is owing to this wind, I suppose, and if it is going to close lanes for us, then let it blow on. The snow is covered with a crust of ice, the going is as good as possible, and the ice, it is to be hoped, is more or less flat, so we shall be all right.

"Johansen shot another ivory gull yesterday, and we had it and another one for dinner. It was our first taste of fresh food, and was, it cannot be denied, very good; but all the same not so delightful as one would expect, seeing that we have not had fresh meat for so many months. It is a proof, no doubt, that the food we have is also good.

"Weighed the bread yesterday; found we had 26 lbs. 4 ozs. of wheaten bread and 17 lbs. 1 oz. of aleuronate bread, so, for that matter, we can manage for another thirty-five or forty days, and how far we shall then have got the gods alone know, but some part of the way it must be.

"Sunday, June 9th. We got away from our camping-ground at last yesterday, and we were more than pleased. In spite of the weather, which was as bad as it could be, with a raging snow-storm from the east, we were both glad to begin our wanderings again. It took some time to fix grips under the kayaks, consisting of sack, sleeping-bag, and blankets, and so load the sledges; but eventually we made a start. We got well off the floe we had lived on so long, and did not even have to use the kayaks which we had spent a week in patching for that purpose. The wind had carefully closed the lanes. We found flat ice country, and made good way in spite of the most villainous going, with newly fallen snow, which stuck to one's snowshoes mercilessly, and in which the sledges stood

as if fixed to the spot as soon as they stopped. The weather was such that one could not see many hundred feet in front of one, and the snow which accumulated on one's clothes, on the weather-side, wetted one to the skin ; but still it was glorious to see ourselves making progress, progress towards our stubborn goal. We came across a number of lanes, and they were difficult to cross, with their complicated network of cracks and ridges in all directions. Some of them were broad and full of brash, which rendered it impossible to use the kayaks. In some places, however, the brash was pressed so tightly together that we could walk on it. But many journeys to and fro are nearly always necessary before any reasonable opportunity of advance is to be found. This time is often long to the one who remains behind with the dogs, being blown through or wetted through meanwhile, as the case may be. Often, when it seemed as if I was never coming back, did Johansen think I had fallen through some lane and was gone for good. As one sits there on the kayak waiting and waiting and gazing in front of one into solitude, many strange thoughts pass through one's brain. Several times he climbed the highest hummock near at hand to scan the ice anxiously ; and then, when at last he discovered a little black speck moving about on the white flat surface far, far away, his mind would be relieved. As Johansen was waiting in this way yesterday, he remarked that the sides of the floe in front

A COIGN OF VANTAGE. PACKED ICE.

of him were slowly moving up and down,* as they might if rocked by a slight swell. Can open water be near? Can it be that the great breakers from the sea have penetrated in here? How willingly would we believe it! But, perhaps, it was only the wind which set the thin ice we are travelling over now in wave-like motion. Or have we really open water to the south-east? It is remarkable that this wind welds the ice together, while the south-west wind here a little while ago slackened it. When all is said, is it possible that we are not far from the sea? I cannot help thinking of the water-reflections we have seen on the sky before us. Johansen has just left the tent, and says that he can see the same reflection in the south; it is higher now, and the weather tolerably clear. What can it be? Only let us go on and get there.

"We came across the track of a bear again yesterday. How old it was could not easily be determined in this snow, which obliterates everything in a few minutes, but it was probably from yesterday, for 'Haren' directly afterwards got scent of something and started off against the wind, so that Johansen thought the bear must be somewhere near. Well, well, old or new, a bear was there while we were a little farther north, stitching at the

* It was probably pressure of the floes against each other which caused this movement. We noticed the same motion several times later.

kayaks, and one day it will come our way, too, no doubt. The gull which Johansen shot brought up a large piece of blubber when it fell, and this tends to confirm us in the belief that bears are at hand, as the bird hardly could have done so, had it not been in company.

"The weather was wet and wretched, and, to make things worse, there was a thick mist, and the going was as heavy as it could be. To go on did not seem very attractive; but, on the other hand, a halt for dinner in this slush was still less so. We therefore continued a little while longer, and stopped at 10 o'clock for good. What a welcome change it was to be under the tent again! And the 'fiskegratin' was delicious. It gives one such a sense of satisfaction to feel that, in spite of everything, one is making a little way. The temperature is beginning to be bad now; the snow is quite wet, and some water has entered my kayak, which I suppose melted on the deck and ran down through the open side where the lacing is, which we have not yet sewn fast. We are waiting for good weather in order to get the covers thoroughly dry first, and then stretch them well.

"Monday, June 10th. In spite of the most impenetrable mist and the most detestable going on soppy snow, which has not yet been sufficiently exposed to frost to become granular, and where the sledges rode their very heaviest, we still managed to make good even

progress the whole day yesterday. There were innumerable lanes, of course, to deal with, and many crossings on loose pieces of ice which we accomplished at a pinch. But the ice is flat here everywhere, and every little counts. It is the same thin winter ice of about 3 feet in thickness. I only saw a couple of old floes yesterday—they were in the neighbourhood of our camping-ground, which was also on an old floe—otherwise the ice is new, and in places very new. We went over some large expanses yesterday of ice one foot or less in thickness. The last of these tracts in particular was very remarkable, and must at one time have been an immense pool; the ice on it was so thin that it cannot be long before it melts altogether. There was water on all this ice, and it was like walking through gruel. As a matter of fact, the ice about here is nothing else but pure broken-up sea-ice, consisting of large and small floes, not infrequently very small floes closely aggregated; but when they have the chance of slackening they will spread over the whole sea hereabouts, and we shall have water enough to row in any direction we please.

"The weather seems to-day to be of the same kind as yesterday, with a south-west wind, which is tearing and rattling at the tent-walls. A thaw and wet snow. I do not know if we shall get any more frost, but it would make the snow in splendid condition for our snowshoes. I am afraid however, that the contrary will rather be the

case, and that we shall soon be in for the worst break-up of the winter. The lanes otherwise are beginning to improve: they are no longer so full of brash and slush; it is melting away, and bridges and such-like have a better chance of forming in the clearer water.

"We scan the horizon unremittingly for land, every time there is a clear interval; but nothing, never anything, to be seen. Meanwhile we constantly see signs of the proximity of land or open water. The gulls increase conspicuously in number, and yesterday we saw a *little auk* (*Mergulus alle*) in a lane. The atmosphere in the south and south-west is always apt to be dark, but the weather has been such that we can really see nothing. Yet I feel that the solution is approaching. But then how long have I not thought so? There is nothing for it but the noble virtue of patience.

"What beautiful ice this would have been to travel over in April, before all these lanes were formed—endless flat plains! For the lanes, as far as we know, are all newly formed ones, with some ridges here and there, which are also new.

"Tuesday, July 11th. A monotonous life this on the whole, as monotonous as one can well imagine it—to turn out day after day, week after week, month after month, to the same toil over ice which is sometimes a little better, sometimes a little worse—it now seems to be steadily getting worse—always hoping to see an end to it, but always hoping in vain, ever the

same monotonous range of vision over ice, and again ice. No sign of land in any direction and no open water, and now we should be in the same latitude as Cape Fligely, or at most a couple of minutes farther north. We do not know where we are, and we do not know when this will end. Meanwhile our provisions are dwindling day by day, and the number of our dogs is growing seriously less. Shall we reach land while we yet have food, or shall we, when all is said, ever reach it? It will soon be impossible to make any way against this ice and snow: the latter is only slush, the dogs sink through at every step; and we ourselves splash through it up above our knees when we have to help the dogs or take a turn at the heavy sledges, which happens frequently. It is hard to go on hoping in such circumstances, but still we do so; though sometimes, perhaps, our hearts fail us when we see the ice lying before us like an impenetrable maze of ridges, lanes, brash, and huge blocks thrown together pell-mell, and one might imagine one's self looking at suddenly congealed breakers. There are moments when it seems impossible that any creature not possessed of wings can get farther, and one longingly follows the flight of a passing gull, and thinks how far away one would soon be could one borrow its wings. But then, in spite of everything, one finds a way, and hope springs eternal. Let the sun peep out a moment from the bank of clouds, and the ice-plains glitter in all their whiteness;

let the sunbeams play on the water, and life seems beautiful in spite of all, and worthy a struggle.

"It is wonderful how little it takes to give one fresh courage. Yesterday I found dead in a lane a little polar cod (*Gadus polaris*), and my eyes, I am sure,

"A CURDLED SEA."

must have shone with pleasure when I saw it. It was real treasure-trove. Where there is fish in the water one can hardly starve, and before I crept into the tent this morning I set a line in the lane beside us. But what a number of these little fish it would require to

feed one, many more in one day than one could catch in a week, or perhaps in a month! Yet one is hopeful and lies counting the chances of there being larger fish in the water here, and of being able to fish to one's heart's content.

"Advance yesterday was more difficult than on the previous days, the ice more uneven and massive, and in some places with occasional old floes in between. We were stopped by many bad lanes, too, so did not make much way, I am afraid not more than 3 or 4 miles. I think we may now reckon on being in latitude 82° 8′ or 9′ N. if this continual south-east wind has not sent us northwards again. The going is getting worse and worse. The snow is water-soaked to the bottom, and will not bear the dogs any longer, though it has become a little more granular lately, and the sledges run well on it when they do not cut through, which happens continually, and then they are almost immovable. It is heavy for the dogs, and would be so even if they were not so wretchedly worn out as they are; they stop at the slightest thing, and have to be helped or driven forward with the whip. Poor animals, they have a bad time of it! 'Lilleræven,' the last of my original team, will soon be unable to go farther—and such a good animal to haul! We have five dogs left ('Lilleræven,' 'Storræven,' and 'Kaifas' to my sledge, 'Suggen' and 'Haren' to Johansen's). We still have enough food for them for three days, from 'Isbjön,' who was killed yesterday

morning; and before that time Johansen thinks the riddle will be solved. Vain hope, I am afraid, although the water-sky in the south-east or south-south-east (magnetic) seems always to keep in the same position and has risen much higher.

"We began our march at half-past six yesterday afternoon, and stopped before a lane at a quarter-past three this morning. I saw fresh-water pools on the ice under some hummocks yesterday for the first time. Where we stopped, however, there were none to be found, so we had to melt water again this morning; but it will not often be necessary hereafter, I hope, and we can save our oil, which, by the way, is becoming alarmingly reduced. Outside the weather and snow are the same; no pleasure in turning out to the toils of the day. I lie here thinking of our June at home, how the sun is shining over forest and fjord and wooded hills, and there is—— But some time we shall get back to life, and then it will be fairer than it has ever been before.

"Wednesday, June 12th. This is getting worse and worse. Yesterday we did nothing, hardly advanced more than a mile. Wretched snow, uneven ice, lanes, and villainous weather stopped us. There was certainly a crust on the snow, on which the sledges ran well when they were on it; but when they broke through—and they did it constantly—they stood immovable. This crust, too, was bad for the dogs, poor things! They sank

through it into the deep snow between the irregularities, and it was like swimming through slush for them. But all the same we made way. Lanes stopped us, it is true, but we cleared them somehow. Over one of them, the last, which looked nasty, we got by making a bridge of small floes, which we guided to the narrowest place. But then a shameless storm of wet snow, or more correctly sleet, with immense flakes, set in, and the wind increased. We could not see our way in this labyrinth of lanes and hummocks, and were as soaked as ducked crows, as we say. The going was impossible, and the sledges as good as immovable in the wet snow, which was soon deep enough to cling to our snowshoes underneath in great lumps, and prevent them from running. There was hardly any choice but to find a camping-ground as soon as possible, for to force one's way along in such weather, and on such snow, and make no progress, was of little use. We found a good camping-ground and pitched our tent after only four hours' march, and went without our dinner to make up.

"Here we are, then, hardly knowing what to do next. What the going is like outside I do not know yet, but probably not much better than yesterday, and whether we ought to push on the little we can, or go out and try to capture a seal, I cannot decide. The worst of it is that there do not seem to be many seals in the ice where we now are. We have seen none the last few days. Perhaps it is too thick and compact for them (?).

The ice here is strikingly different in character from that we have been travelling over of late. It is considerably more uneven, for one thing, with mounds and somewhat old ridges, among them some very large ones. Nor does it look so very old—in general, I should say, of last winter's formation, though there are occasional old floes in between. They appear to have been near land, as clay and earthy matter are frequently to be seen, particularly in the newly formed ridges.

"Johansen, who has gone out, says the same water-sky is to be seen in the south. Why is it we cannot reach it? But there it is all the same, an alluring goal for us to make for, even if we do not reach it very soon. We see it again and again, looking so blue and beautiful; for us it is the colour of hope."

"Friday, June 14th. It is three months to-day since we left the *Fram*. A quarter of a year have we been wandering in this desert of ice, and here we are still. When we shall see the end of it I can no longer form any idea; I only hope whatever may be in store for us is not very far off, open water or land—Wilczek Land, Zichy Land, Spitzbergen, or some other country.

"Yesterday was not quite so bad a day as I expected. We really did advance, though not very far—hardly more than a couple of miles—but we must be content with that at this time of year. The dogs could not manage to draw the sledges alone; if there was nobody beside them, they stopped at every other step. The only thing

to be done was to make a journey to and fro, and thus go over the ground three times. While I went on ahead to explore, Johansen drove the sledges as far as he could; first mine, and then back again after his own. By that time I had returned and drove my own sledge as far as I had found a way; and then this performance was repeated all over again. It was not rapid progress, but progress it was of a kind, and that was something. The ice we are going over is anything but even; it is still rather massive and old, with hummocks and irregularities in every direction, and no real flat tracts. When, added to this, after going a short distance, we came to a place where the ice was broken up into small floes, with high ridges and broad lanes filled with slush and brash, so that the whole thing looked like a single mass of *débris*, where there was hardly standing-room, to say nothing of any prospect of advance, it was only human to lose courage and give up, for the time being, trying to get on. Wherever I turned the way was closed, and it looked as if advance was denied us for good. To launch the kayaks would be of no avail, for we could hardly expect to propel them through this accumulation of fragments, and I was on the point of making up my mind to wait and try our luck with the net and line, and see if we could not manage to find a seal somewhere in these lanes.

"These are moments full of anxiety, when from some hummock one looks doubtingly over the ice, one's

thoughts continually reverting to the same question: have we provisions enough to wait for the time when the snow will have melted, and the ice have become slacker, and more intersected with lanes, so that one can row between the floes? Or is there any probability of our being able to obtain sufficient food, if that which we have should fall short? These are great and important questions which I cannot yet answer for certain. That it will take a long time before all this snow melts away, and advance becomes fairly practicable, is certain; at what time the ice may become slacker, and progress by means of the lanes possible, we cannot say; and up to this we have taken nothing, with the exception of two ivory gulls and a small fish. We did, indeed, see another fish swimming near the surface of the water, but it was no larger than the other. Where we are just now, there seems to be little prospect of capturing anything. I have not seen a single seal the last few days; though yesterday I saw the snowed-down track of a bear. Meanwhile we see ivory gulls continually; but they are still too small to be worth a cartridge; yesterday, however, I saw a large gull, probably *Larus argentatus*.

"I determined to make one more attempt to get on by striking farther east, and this time I was successful in finding a passage across by way of a number of small floes. On the other side there was rather old compact ice, partially of formation a summer old, which seemed

to have been near land, as it was irregular, and much intermixed with earthy matter. We have travelled over this ice-field ever since without coming on lanes; but it was uneven, and we came to grief several times. In other places again it was pretty good.

"We began our march at 8 o'clock on Wednesday afternoon, and halted here at 5 o'clock this morning.* Later on in the forenoon the wind went over to the north-east, and the temperature fell. The snow froze hard, and eventually the going became pretty good. The crust on the snow bore the dogs up, and also the sledges to a certain extent, and we looked forward to good going on the following day; but in this we were doomed to disappointment. No sooner had we got inside the tent than it began to snow, and kept briskly at it the whole day whilst we slept, and yesterday evening, when we turned out to get breakfast ready and start off, it was still snowing, and deep, loose snow covered everything; a state of things bad beyond description. There was no sense in going on, and we decided to wait and see how matters would turn out. Meanwhile we were hungry, but as we could not afford a full breakfast I prepared a small portion of fish soup, and we returned to the bag again: Johansen to sleep on, I to

* We found water on the ice here, suitable for cooking, for the first time. It was, however, somewhat salt, so that the "fiskegratin" was too well seasoned.

re-reckon all my observations from the time we left the *Fram*, and see if some error might not explain the mystery why no land was yet to be found. The sun had partially appeared, and I tried, though in vain, to take an observation. I stood waiting for more than an hour with the theodolite up, but the sun went in again and remained out of sight. I have calculated and calculated and thought and thought, but can find no mistake of any importance, and the whole thing is a riddle to me. I am beginning seriously to doubt that we may be too far west after all. I simply cannot conceive that we are too far east; for in such a case we cannot, at any rate, be more than 5° farther east than our observations* make us. Supposing, for instance, that our watches have gone too fast, 'Johannsen'† cannot, at all events, have gained more than double its previous escapement. I have assumed an escapement of five seconds; but supposing that the escapement has been ten seconds this does not make more difference than 6′ 40″ in eighty days (the time from our departure from the *Fram* till the last observation) that is 1° 40′ farther east than we ought to be. Assuming, too, that I have calculated

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* As it proved later, we were, in reality, about 6° farther east than we thought.

† I called my watch thus after Johannsen, the watchmaker in London, who supplied it.

our days' marches at too great length, in the days between April 8th and 13th, and that instead of 36 English geographical miles or rather more than 40 statute miles, we have only gone 24 English geographical miles, or 28 statute miles (less we cannot possibly have gone), we should then have been in 89° E. instead of in 86° E. on the 13th as we supposed. That is 3° farther east, or with the figures above, let us say together 5° farther east, *i.e.*, we now instead of being in longitude 61° E. should be in 66° E.,* or about 70 miles from Cape Fligely. But it seems to me we ought to see land south of us just the same. Wilczek Land cannot be so low and trend suddenly so far to the south, when Cape Buda-Pest is said to lie in about 61° E. and 82° N., and should thus be not so much as 50 miles from us. No, this is inconceivable. On the other hand, it is not any easier to suppose ourselves west of it; we must have drifted very materially between April 8th and 13th, or my watch must have stopped for a time before April 2nd. The observations from April 2nd, 4th, and 8th seem, indeed, to indicate that we drifted considerably westwards. On the 2nd we appeared to be in 103° 6′ E., on the 4th in 99° 59′ E., and April 8th in 95° 7′ E. Between these

* In reality we were somewhat near the point I here assume (we were in 67° E., approximately). The reason why we did not see the land here mentioned was because it does not exist; as was proved later.

dates there were no marches of importance; between the observations on the 2nd and the 4th there was only a short half-day's march; and between the 4th and the 7th a couple, which amounted to nothing, and could only have carried us a little westwards. This is as much as to say that we must have drifted 8°, or let us reckon at any rate 7° westwards in the six days and nights. Assuming that the drift was the same during the five days and nights between the 8th and 13th, we then get 7° farther west than we suppose. We should consequently now be in 54° E., instead of in 61° E., and not more than 36 to 40 miles from Cape Fligely and close by Oscar's Land. We ought to see something of them, I think. Let us assume meanwhile that the drift westwards was strong in the period before April 2nd also, and grant the possibility that my watch did stop at that time (which I fear is not excluded), and we may then be any distance west for all we can tell. It is this possibility which I begin to think of more and more. Meanwhile, apparently there is nothing for it but to continue as we have done already—perhaps a little more south—and a solution must come.

"When, after having concluded my calculations, I had taken a nap and again turned out at midday to-day, the condition of the snow proved to be no better; in fact, rather worse. The new snow was wet and sticky and the going as heavy as it well could be. However, it was necessary to make an attempt to get on, there was

nothing gained by waiting there, and progress is progress be it ever so little.

"I took a single altitude about midday, but it was not sharp."

"Saturday, June 15th. The middle of June and still no prospect of an end to this; things only became worse instead. So bad as yesterday, though, it has never been, and worse, happily, it can hardly be. The sledges ran terribly heavy in the loose, wet, newly-fallen snow, which was deep to boot, and sometimes when they stopped—and that was continually—they stuck as if glued to the spot. It was all we could do to move them when we pushed with all our might. Then to this was added the fact that one's snowshoes ran equally badly, and masses of snow collected underneath them the minute one stopped; one's feet kept twisting continually from this cause, and ice formed under them, so that one suddenly slid off the snowshoes and into the snow, till far above one's knees, when one tried to pull or help the sledges; but there was nothing for it but to scramble up and on to them again. To wade along in such snow without them is an impossibility, and, as I have said before, though fastening them on securely would have been a better plan, yet it would have been too troublesome, seeing that we had to take them off continually to get the sledges over ridges and lanes. In addition to all this, wherever one turns, the ice is uneven and full of mounds and old ridges, and it is only by wriggling along

like an eel, so to speak, that one can get on at all. There are lanes, too, and they compel one to make long détours or go long distances over thin, small floes, ridges, and other abominations. We struggled along, however, a little way, working on our old plan of two turns, but a quick method it could not be called. The dogs are becoming more and more worn-out. 'Lilleræven,' the last survivor of my team, can now hardly walk—hauling there is no question of—he staggers like a drunken man, and when he falls can hardly rise to his feet again. To-day he is going to be killed, I am thankful to say, and we shall be spared seeing him. 'Storræven,' too, is getting very slack in the traces; the only one of mine which pulls at all is 'Kaifas,' and that is only as long as one of us is helping behind. To keep on longer in such circumstances is only wearing out men and dogs to no purpose, and is also using up more provender than is necessary. We therefore renounced dinner, and halted at about ten yesterday evening, after having begun the march at half-past four in the afternoon. I had, however, stopped to take an observation on the way. It is not easy to get hold of the sun nowadays, and one must make the most of him when he is to be seen through the driving clouds; clear he will never be. Yesterday afternoon, after an unconscionable wait, and after having put up the instrument in vain a couple of times, I finally got a wretched single altitude.

"Yesterday evening I reckoned out these observations and find that, contrary to our expectations, we have drifted strongly westwards, having come from 61° 16′ E., which was our longitude on June 4th, right to about 57° 40′ E. But then we have also drifted a good way north again, up to 82° 26′ N., after being down in 82° 17·8′ on the same date, and we have been pushing southwards as hard as we could the whole time. However, we are glad to see that there is so much movement in the ice, for then there is hope of our drifting out eventually towards open water; for that we can get there by our own efforts alone over this shocking ice I am beginning to doubt. This country and this going are too bad, and my hope now is in lanes and slack ice. Happily, a north-east wind has sprung up. Yesterday there was a fresh breeze from the north-north-west (magnetic), and the same again to-day. Only let it blow on; if it has set us north-west it can also set us south-west, and eventually out towards our goal, towards Franz Josef Land or Spitzbergen. I doubt more than ever our being east of Cape Fligely after this observation, and I begin to believe more and more in the possibility that the first land we shall see—if we see any, and I hope we may—will be Spitzbergen. In that case we should not even get a glimse of Franz Josef Land, the land of which I have dreamed golden dreams day and night. But still if it is not to be, then well and good. Spitzbergen is good enough, and if we are as far west as

we seem to be, I have greater hope than before of finding slacker ice and open water; and then for Spitzbergen! But there is still a serious question to be faced, and that is to procure ourselves enough food for the journey.

"I have slept here some time on purpose, after having spent a good while on my calculations and speculations as to our drift and our future. We have nothing to hurry for in this state of the snow; it is hardly better today than it was yesterday, and then, on account of the mild temperature, it is better to travel by night than by day. The best thing to do is to spin out the time as long as possible without consuming more than absolutely necessary of the provisions; the summer cannot but improve matters, and we have still three months of it before us. The question is, can we procure ourselves food during that time? It would be strange, I think, if we could not. There are birds about continually; I saw another large gull yesterday, probably the herring or silver gull (*Larus argentatus*)—but to support life for any length of time on such small fry we have not cartridges enough. On seal or bear all my hopes are fixed; just one before our provisions give out, and the evil hour is warded off for a long time to come."

"Sunday, June 16th. Yesterday was as bad as it well could be, the surface enough to make one desperate, and the ice rough. I very much doubted whether the

wisest thing would not be to kill the dogs and keep them as food for ourselves, and try to make our way on as best we could without them. In that manner we should have provender for fifteen or perhaps twenty days longer, and should be able to make some progress at the same time. There does not seem much to be done in that line, however, and perhaps the right thing to do is to wait. But, on the other hand, perhaps, it is not far to land or open water, or, at any rate, to slack ice, and then every mile we can make southwards is of importance. I have, therefore, come to the conclusion that we must use the dogs to get on with as best we can—perhaps there will be a change before we expect it; if nothing else then, perhaps, some better ice, like that we had before. Meanwhile we were obliged to kill two dogs yesterday. 'Lilleræven' could hardly go when we started; his legs seemed to be quite paralysed and he fell down and could not get up again. After I had dragged him and the sledge for a time and had tried in vain to make him go, I had to put him on the load, and when we came to some hummocks where there was shelter from the north wind, Johansen killed him, while I went forward to find a way. Meanwhile my other dog, 'Storræven,' was in almost as bad a plight. Haul he could not, and the difficulty was to make him go on so that he was not dragged with the sledge. He went a little way, stumbling and falling, and being helped up repeatedly, but soon he was just as bad as 'Lilleræven

had been, lagged behind, got the traces under the sledge runners, and was dragged with it. As I thought I had enough to do in hauling the sledge I let him go, in the hope that he would, at any rate, follow us. He did so for a little while, but then stopped behind, and Johansen was compelled to fetch him and put him on his load, and when we camped he was killed too.

"'Kaifas' is the only dog I have left to help me haul my sledge, and Johansen has 'Haren' and 'Suggen.' We have rations for them for ten days from the two slaughtered dogs, but how far we shall be able to get with them the gods alone know. Not very far, I am afraid. Meanwhile our hitherto somewhat primitive method of hauling had to be improved on. With two dog-harnesses we accordingly made ourselves proper hauling-gear,* and therewith all idea of using snowshoes not securely fastened on had to be abandoned. One's feet twisted and slipped and slid off

* A proper hauling harness is an important item, and in the long run is much less trying than the ordinary hauling strap or rope crosswise over the chest and one shoulder. The form of harness I use consists of two straps, which are passed over both shoulders, like the straps of a knapsack, and are fastened crosswise over the back to a leathern belt, where the hauling-rope from the sledge is also attached. It is thus in one's power during the work of hauling to distribute the strain equally between both shoulders and the belt (*i.e.*, the thighs and abdomen). The hauling "centre of gravity" is in this manner lower in the body, just above the legs, which do the work, and the hauling-rope does not, as is usually the case, press only on the upper part of the body.

the snowshoes and deep down into the bottomless snow, which in addition turned to ice under our feet, and with our smooth komager-soles was as slippery as eel-skin to stand on. Then we fastened them on, and where the ice was even, it really was possible to drag the sledge, even with only one dog beside one. I saw that given passable snow and passable country to work on, we could make some progress during the day, though as soon as there was the slightest irregularity in the ice the sledges stood perfectly still. It was necessary to strain at the harness all one knew, and then perhaps fail to make the sledge budge an inch. Then back one had to go to it, and after exerting one's strength to the utmost, it would finally glide over the obstacle and on towards a new one, where exactly the same process had to be gone through. If it was wished to turn the sledge in the deep snow where it stood embedded, matters were no better ; it was only by lifting it bodily that one could get it on at all. So we went on step by step until perhaps we came on a small extent of level ice where we could increase the pace. If, however, we came on lanes and ridges, things were worse than ever, one man cannot manage a sledge alone, but two must be put to each sledge. Then when we have followed up the track I have marked out beforehand, I have to start off again and find a way between the hummocks. To go direct, hauling the sledge, is not advisable where the ice is uneven, as it only means getting into difficulties and being constrained eventually

to turn back. In this way we are grinding along, but it goes without saying that speed and long marches are not the order of the day. But still as it is we make a little way, and that is better than nothing ; it is, besides, the only thing we can do, seeing that it is impossible to crawl into a lair and hibernate for a month or so till progress is possible again.

"To judge by the sky, there must be a number of lanes in the south and south-west. Perhaps our trying mode of advance is leading us to something better. We began at about ten yesterday evening, and stopped at six this morning. We have not had dinner the last few days in order to save a meal, as we do not think this ice and our progress generally is worth much food. With the same object, we this morning collected the blood of 'Storræven' and converted it into a sort of porridge instead of the 'fiskegratin.' It was good, even if it was only dog's blood, and at any rate we have a portion of fish-flour to the good. Before we turned into the bag last night we inspected our cartridges, and found to our joy that we had 148 shot-gun cartridges, 181 rifle cartridges, and in addition 14 spherical shot cartridges. With so much ammunition, we should be able to increase our provisions for some time to come, if necessary, for if nothing else should fall to our guns there would always be birds, and 148 birds will go a long way. If we use half-charges, we can eke out our ammunition still further. We have, moreover, half a pound of gunpowder and some spherical

shot for the rifles, also caps for reloading the cartridges. This discovery has put me in good spirits, for, truth to tell, I did not think our prospects were inordinately bright. We shall now, perhaps, be able to manage for three months, and within that time something must happen. In addition to what we can shoot, we can also catch gulls with a hook, and if the worst should come to the worst, and we set seriously to work, we can probably take some animalculæ and the like with the net. It may happen that we shall not get to Spitzbergen in time to find a vessel, and must winter there, but it will be a life of luxury compared with this in the drift-ice, not knowing where we are nor whither drifting, and not seeing our goal, in spite of all our toil. I should not like to have this time over again. We have paid dearly for letting our watches run down that time. If there was no one waiting at home, a winter in Spitzbergen would be quite enticing. I lie here and dream of how comfortably and well we could manage there. Everything outside of this ice seems rosy, and out of it we shall be some time or other! We must comfort ourselves with the adage that night is darkest before the dawn. Of course it somewhat depends on *how* dark the night is to be, and considerably darker than it is now it might very well be. But our hopes are fixed on the summer. Yes, it *must* be better as summer gradually comes on."

So on we went forwards; and day after day we were going through exactly the same toil, in the same heavy

snow, in which the sledges stuck fast ceaselessly. Dogs and men did their best, but with little effect, and in addition we began to be uneasy as to our means of subsistence. The dogs' rations were reduced to a minimum, to enable us to keep life going as long as possible. We were hungry and toil-worn from morning to night and from night to morning, all five of us. We determined to shoot whatever came in our way, even gulls and fulmars; but now, of course, none of this game ever came within range.

The lanes grew worse and worse, filled generally with slush and brash. We were often compelled to go long distances over nothing but small pieces, where one went through continually. On June 18th "a strong wind from the west (magnetic), sprang up, which tears and rattles at the tent. We are going back, I suppose, whence we came, only farther north perhaps. So we are buffeted by wind and current, and so it will go on, perhaps the whole summer through, without our being able to master it. A meridian altitude that day made us in 82° 19′ N., so we had come down again a little. I saw and shot a couple of fulmars and a Brünnich's guillemot (*Uria brünnichii*), and these eked out our rations, but, to our distress, I fired at a couple of seals in the lanes and missed my mark. How we wished we could get hold of such a prize! "Meanwhile there is a good deal of life here now," I write on June 20th. "Little auks fly backwards and forwards in numbers, and they

sit and chatter and show themselves just outside the tent-door; it is quite a pleasure to see them, but a pity they are so small that they are not worth a shot. We have not seen them in flocks yet, but in couples as a rule. It is remarkable how bird-life has increased since the west wind set in the day before yesterday. It is particularly striking how the little auks have suddenly appeared in myriads; they whiz past the tent here with their cheery twitter, and it gives one the feeling of having come down to more hospitable regions. This sudden finding of Brünnich's guillemots seems also curious, but it does no good. Land is not to be descried, and the snow is in as wretched a condition as it can be. A proper thaw, so that the snow can disappear more quickly, does not come. Yesterday morning before breakfast I went for a walk southwards to see what were our chances of advance. The ice was flat and good for a little way, but lanes soon began which were worse than ever. Our only expedient now is to resort to strong measures and launch the kayaks, in spite of the fact that they leak; we must then travel as much as possible by way of the lanes, and with this resolution I turn back. The snow is still the same, very wet, so that one sank deep in between the hummocks, and there are plenty of them. We could not afford a proper breakfast, so we took $1\frac{2}{3}$ oz. bread and $1\frac{2}{3}$ oz. pemmican per man, and then set to work to mend the pumps and put the kayaks in order for

ferrying, so that their contents should not be spoiled by water leaking in. Among other things, a hole had to be patched in mine which I had not seen before.

"We had a frugal supper, 2 ozs. aleuronate bread and 1 oz. butter per man, and crept into the bag to sleep as long as possible and kill the time without eating. The only thing to be done is to try and hold out till the snow has melted, and advance is more practicable. At one in the afternoon we turned out to a rather more abundant breakfast of 'fiskegratin,' but we do not dare to eat as much as we require any longer. We are looking forward to trying our new tactics, and instead of attempting to conquer nature, obeying her and taking advantage of the lanes. We must get some way, at any rate, by this means; and the farther south the more prospect of lanes and the greater chance of something falling to our guns.

"Otherwise it is a dull existence enough, no prospect for the moment of being able to get on, impassable packed ice in every direction, rapidly diminishing provisions, and now, too, nothing to be caught or shot. An attempt I made at fishing with the net failed entirely —a pteropod (*Clio borealis*) and a few crustacea were the whole result. I lie awake at night by the hour racking my brain to find a way out of our difficulties. Well, well, there will be one eventually!

"Saturday, June 22nd. Half-past nine a.m., after a good breakfast of seal's-flesh, seal-liver, blubber, and soup.

"Here I lie dreaming dreams of brightness; life is all sunshine again. What a little incident is necessary to change the whole aspect of affairs! Yesterday and the last few days were dull and gloomy; everything seemed hopeless, the ice impassable, no game to be found; and then comes the incident of a seal rising near our kayaks and rolling about round us. Johansen has time to give it a ball just as it is disappearing, and it floats while I harpoon it—the first and only bearded seal (*Phoca barbata*) we have yet seen—and we have abundance of food and fuel for upwards of a month. We need hurry no longer; we can settle down, adapt the kayaks and sledges better for ferrying over the lanes, capture seals if possible, and await a change in the state of the ice. We have eaten our fill both at supper and breakfast, after being ravenous for many days. The future seems bright and certain now, no clouds of darkness to be seen any longer.

"It was hardly with great expectations that we started off on Thursday evening. A hard crust which had formed on the top of the soft snow did not improve matters; the sledges often cut through this, and were not to be moved before one lifted them forward again, and when it was a case of turning amid the uneven ice, they stuck fast in the crust. The ice was uneven and bad, and the snow loose and water-soaked, so that, even with snowshoes on, we sank deep into it ourselves. There were lanes besides, and though

tolerably easy to cross, as they were often packed together, they necessitated a winding route. We saw clearly that to continue in this way was impossible. The only resource was to disburden ourselves of everything which could in any way be dispensed with, and start afresh as quickly as we could, with only provisions, kayaks, guns, and the most necessary clothing, in order, at any rate, to reach land before our last crumb of food was eaten up. We went over the things to see what we could part with : the medicine-bag, the spare horizontal bars belonging to the sledges, reserve snowshoes and thick, rough socks, soiled shirts, and the tent. When it came to the sleeping-bag we heaved a deep sigh, but, wet and heavy as it always is now, that had to go, too. We had, moreover, to contrive wooden grips under the kayaks, so that we can without further trouble set the whole thing afloat when we have to cross a lane, and be able to drag the sledges up on the other side and go on at once. If it should then, as now, be impossible for us to launch the sledges, because sleeping-bag, clothes, and sacks of provender, etc., are lying on them as a soft dunnage for the kayaks, it will take too much time. At every lane we should be obliged to unlash the loads, lift the kayaks off the sledges and into the water, lash them together there, then place the sledges across them, and finally go through the same manœuvres in inverse order on the other side. We should not get very far in the day in that manner.

"Firmly determined to make these alterations, the very next day we started off. We soon came to a long pool, which it was necessary to ferry over. The kayaks were soon launched and lying side by side on the water well stiffened with the snowshoes under the straps,* a thoroughly steady fleet. Then the sledges, with their loads, were run out to them, one forward, one astern. We had been concerned about the dogs and how we should get them to go with us, but they followed the sledges out on to the kayaks and lay down as if they had done nothing else all their lives. 'Kaifas' seated himself in the bow of my kayak, and the two others astern.

"A seal had come up near us while we were occupied with all this, but I thought to wait before shooting it till the kayaks were ready, and thus be certain of getting it before it sank. Of course it did not show itself again. These seals seem to be enchanted, and as if they were only sent to delay us. Twice that day before I had seen them and watched in vain for them to appear again. I had even achieved missing one, the third time I have missed my mark. It looks bad for the ammunition if I am going on like this, but I have discovered that I aimed too high for

* Certain straps which are fixed on the "kayak," just in front of the occupant, and through which the paddle is passed when shooting, etc. The blade thus lying laterally on the water very much increases the steadiness of the occupants.

these short ranges, and had shot over them. So then we set off across the blue waves on our first long voyage. A highly remarkable convoy we must have been, laden as we were with sledges, sacks, guns, and dogs; a tribe of gipsies, Johansen said it was. If anyone had suddenly come upon us then, he would hardly have known what to make of the troupe, and certainly would not have taken us for Polar explorers. Paddling between the sledges and the snowshoes which projected far out on either side, was not easy work, but we managed to get along, and were soon of the opinion that we should think ourselves lucky could we go on like this the whole day, instead of hauling and wading through the snow. Our kayaks could hardly have been called water-tight, and we had recourse to the pumps several times, but we could easily have reconciled ourselves to that, and only wished we had more open water to travel over. At last we reached the end of the pool; I jumped ashore on the edge of the ice, to pull up the kayaks, and suddenly heard a great splash beside us. It was a seal which had been lying there. Soon afterwards I heard a similar splash on the other side, and then for the third time a huge head appeared, blowing and swimming backwards and forwards, but alas, only to dive deep under the edge of the ice before we had time to get the guns out. It was a fine, large blue or bearded seal (*Phoca barbata*).

"We were quite sure that it had disappeared for good, but no sooner had I got one of the sledges half-way up

CHANNELS IN THE ICE. 24 JUNE, 1895.

(By Lars Jorde, from a photograph.)

the side than the immense head came up again close beside the kayaks, blowing and repeating the same manœuvres as before. I looked round for my gun, but could not reach it where it was lying on the kayak. 'Take the gun, Johansen, quick, and blaze away; but quick, look sharp, quick!' In a moment he had thrown the gun to his cheek, and just as the seal was on the point of disappearing under the edge I heard the report. The animal made a little turn, and then lay floating, the blood flowing from its head. I dropped the sledge, seized the harpoon, and quick as lightning threw it deep into the fat back of the seal, which lay quivering on the surface of the water. Then it began to move; there was still life in it; and, anxious lest the harpoon with its thin line should not hold if the huge animal began to quicken in earnest, I pulled my knife out of its sheath and stuck it into the seal's throat, whence a stream of blood came flowing out. The water was red with it for a long distance, and it made me quite sorry to see the wherewithal for a good meal being wasted like this. But there was nothing to be done; not on any account would I lose that animal, and for the sake of safety gave it another harpoon. Meanwhile the sledge, which had been half dragged up on to the ice, slid down again, and the kayaks, with Johansen and the dogs came adrift. He tried to pull the sledge up on to the kayak, but without success, and so it remained with one end in the water and one on the canoe. It heeled the whole fleet

over, and Johansen's kayak canted till one side was in the water; it leaked, moreover, like a sieve, and the water rose in it with alarming rapidity. The cooker which was on the deck fell off, and drifted gaily away before the wind with all its valuable contents, borne high up in the water by the aluminium cap, which happily was water-tight. The snowshoes fell off and floated about, and the fleet sank yet deeper and deeper. Meanwhile I stood holding our precious prize, not daring to let go. The whole thing was a scene of the most complete dissolution. Johansen's kayak had by this time heeled over to such an extent that the water reached the open seam on the deck, and the craft filled immediately. I had no choice left but to let go the seal, and drag up the kayak before it sank. This done, heavy as it was and full of water, the seal's turn came next, and this was much worse. We had our work cut out to haul the immense animal hand over hand up on to the ice, but our rejoicings were loud when we at last succeeded, and we almost fell to dancing round it in the excess of our delight. A water-logged kayak and soaked effects we thought nothing of at such a supreme moment. Here was food and fuel for a long time.

"Then came the rescuing and drying of our things. First and foremost, of course, the ammunition; it was all our stock. But happily the cartridges were fairly watertight, and had not suffered much damage. Even the shot cartridges, the cases of which were of paper,

had not lain long enough to become wholly permeated. Such, however, was not the case with a supply of powder, the small tin box in which we kept it was entirely full of water. The other things were not so important, though it was hardly a comforting discovery to find that the bread was soaked through with salt water.

"We found a camping-ground not far off. The tent was soon pitched, our catch cut up and placed in safety, and, I may say, seldom has the drift-ice housed beings so well satisfied as the two who sat that morning in the bag and feasted on seal's flesh, blubber, and soup as long as they could find any room to stow it. We concurred in the opinion that a better meal we could not have had. Then down we crawled into the dear bag, which for the present there was no need to part with, and slept the sleep of the just in the knowledge that for the immediate future, at any rate, we need have no anxiety.

"It is my opinion that for the time being we can do nothing better than remain where we are; live on our catch without encroaching on the sledge provisions, and thus await the time when the ice shall slacken more or the condition of the snow improve. Meanwhile we will rig up wooden grips on our sledges, and try to make the kayaks water-tight. Furthermore we will lighten our equipment as much as we possibly can. If we were to go on we should only be obliged to leave a great deal

of our meat and blubber behind us, and this, in these circumstances, I think would be madness."

"Sunday, June 23rd. So this is St. John's Eve, and Sunday too. How merry and happy all the school-boys are to-day; how the folk at home are starting forth in crowds to the beautiful Norwegian woods and valleys . . . . and here are we still in the drift-ice; cooking and frying with blubber, eating it and seal's-flesh until the train-oil drips off us, and, above all, not knowing when there will be an end to it all. Perhaps we still have a winter before us. I could hardly have conceived that we should be here now!

"It is a pleasing change, however, after having reduced our rations and fuel to a minimum to be able to launch out into excesses, and eat as much and as often as we like. It is a state of things hardly to be realised at present. The food is agreeable to the taste and we like it better and better. My own opinion is that blubber is excellent both raw and fried, and it can well take the place of butter. The meat, in our eyes, is as good as meat can be. We had it yesterday for breakfast in the shape of meat and soup served with raw blubber. For dinner I fried a highly-successful steak not to be surpassed by the 'Grand' [Hotel], though a good 'seidel' of bock beer would have been a welcome addition. For supper I made blood-pancakes fried in blubber instead of butter, and they were a success, inasmuch as Johansen pronounced them 'first-class,' to say nothing of my own

sentiments. This frying, however, inside the tent over a train-oil lamp is a doubtful pleasure. If the lamp itself does not smoke the blubber does, causing the unfortunate cook the most excruciating pain in the eyes; he can hardly keep them open and they water copiously. But the consequences could be even worse. The train-oil lamp which I had contrived out of a sheet of German silver became over-heated one day, under the hot frying-pan, and at last the whole thing caught fire, both the lumps of blubber and the train-oil. The flame shot up into the air, while I tried by every means in my power to put it out, but it only grew worse. The best thing would have been to convey the whole lamp outside, but there was no time for it. The tent began to fill with suffocating smoke, and as a last resort I unfortunately seized a handful of snow and threw it on to the burning train-oil. It sputtered and crackled, boiling oil flew in all directions, and from the lamp itself rose a sea of flames which filled the whole tent and burned everything they came near. Half suffocated, we both threw ourselves against the closed door, bursting off the buttons, and dashed headlong into the open air; glad, indeed, to have escaped with our lives. With this explosion the lamp went out; but when we came to examine the tent we found an enormous hole burned in the silk wall above the place where the frying-pan had stood. One of our sledge-sails had to pay the penalty for that hole. We crept back into the tent again, congratulating ourselves, however, on having

got off so easily, and, after a great deal of trouble, rekindled a fire so that I could fry the last pancake. We then eat it with sugar, in the best of spirits, and pronounced it the most delicious fare we had ever tasted. We had good reason, too, to be in spirits, for our observation for the day made us in 82° 4·3′ N. lat. and 57° 48′ E. long. In spite of westerly and, in a measure, south-westerly winds, we had come nearly 14′ south in three days and next to nothing east. A highly surprising and satisfactory discovery. Outside, the north wind was still blowing, and consequently we were drifting south towards more clement regions.

"Wednesday, June 26th. June 24th was naturally celebrated with great festivities. In the first place, it was that day two years since we started from home; secondly, it was a hundred days since we left the *Fram* (not really, it was two days more), and thirdly, it was Midsummer Day. It was, of course a holiday, and we passed it in dreaming of good times to come, in studying our charts, our future prospects, and in reading anything readable that was to be found, *i.e.*, the almanack and navigation tables. Johansen took a walk along the lanes, and also managed to miss a ringed seal or 'snad,' as we call it in Norwegian, in a pool here east of us. Then came supper—rather late in the night—consisting of blood-pancakes with sugar, and unsurpassed in flavour. The frying over the oil lamp took a long time, and in order to have them hot we had to eat each one as it was

CROSSING A CRACK IN THE ICE.

fried, a mode of procedure which promoted a healthy appetite between each pancake. Thereafter we stewed some of our red whortleberries, and they tasted no less good, although they had been soaked in salt water in Johansen's kayak during the catastrophe of a couple of days ago; and after a glorious meal we turned into the bag at 8 o'clock yesterday morning.

"At midday, again, I got up and went out to take a meridian altitude. The weather was brilliant, and it was so long since we had had anything of the kind that I could hardly remember it. I sat up on the hummock waiting for the sun to come to the meridian; basking in its rays, and looking out over the stretches of ice where the snow glittered and sparkled on all sides; and at the pool in front of me lying shining and still as a mountain lake, and reflecting its icy banks in the clear water. Not a breath of wind stirred—so still, so still; and the sun baked, and I dreamed myself at home. . . . . .

"Before going into the tent, I went to fetch some salt-water for the soup we were to have for breakfast; but just at that moment a seal came up by the side of the ice, and I ran back for my gun and kayak. Out on the water I discovered that it was leaking like a sieve from lying in the sun, and I had to paddle back faster than I came out, to avoid sinking. As I was emptying the kayak, up came the seal again in front of me, and this time my shot took effect; the animal lay floating on the water like a cork. It was not many minutes

before I had the leaking craft on the water again, and my harpoon in the animal's neck. I towed it in while the kayak gradually filled, and my legs, or, rather, that part which follows closely above the legs when one is sitting in a canoe, became soaked with water, and my 'komager' gradually filled. After having dragged the seal up to the tent, 'flensed' it, collected all the blood which was to be had, and cut it up, I crept into the tent, put on some dry underclothes, and into the bag again, while the wet ones were drying outside in the sun. It is easy enough to keep oneself warm in the tent now. The heat was so great inside it last night that we could hardly sleep, although we lay on the bag instead of in it. When I came back with the seal, I discovered that Johansen's bare foot was sticking out of the tent at a place where the peg had given way; he was sleeping soundly, and had no idea of it. After having a small piece of chocolate to commemorate the happy capture, and, looking over my observations, we again settled down to rest.

"It appears, remarkably enough, from our latitude that we are still on the same spot without any further drift southwards, in spite of the northerly winds. Can the ice be landlocked? It is not impossible; far off land, at any rate, we cannot be."

"Thursday, June 27th. The same monotonous life, the same wind, the same misty weather, and the same cogitations as to what the future will bring. There was a gale from the north last night with a fall of hard

granular snow, which lashed against the tent walls so that one might think it to be good honest rain. It melted on the walls directly, and the water ran down them. It is cosy in here, however, and the wind does not reach us ; we can lie in our warm bag, and listen to the flapping of the tent, and imagine that we are drifting rapidly westwards, although perhaps we are not moving from the spot. But if this wind does not move us, the only explanation is that the ice is land-locked, and that we cannot be far off shore. We must wait for an east wind, I suppose, to drive us farther west, and then afterwards south. My hope is that we shall drift into the channel between Franz Josef Land and Spitzbergen while we are lying here. The weather was raw and windy with snowfall, so that it was hardly suitable for out-door work, particularly as, unfortunately, there was no need to hurry.

" The lanes have changed very much of late ; there is hardly anything left of the pool in front of us over which we paddled, and there has been pressure around us in all directions. I hope the ice will be well ground into pieces, as this enables it to slacken more quickly when the time comes ; but that will not be before far on in July, and we ought to have the patience to wait for it perhaps.

" Yesterday we cut some of the seal's flesh into thin slices and hung them up to dry. We must increase our travelling store and prepare pemmican or dried meat ; it will be the easiest way of carrying it with us. Johansen yesterday found a pond of fresh water close by, which is

very convenient, and we need no longer melt ice ; it is the first good water we have found for cooking purposes. If the seals are few and far between, there are birds still, I am thankful to say. Last night a couple of ivory gulls, *larus eburneus*, were bold enough to settle down on our seal-skin, close beside the tent wall, and pecked at the blubber. They were sent off once or twice but returned. If the meat fall short we must resort to catching birds."

Thus the days passed by, one exactly like the other ; we waited and waited for the snow to melt and worked desultorily meanwhile at getting ourselves ready to proceed. This life reminded me of some Eskimos who journeyed up a fjord to collect grass for hay ; but when they arrived at their destination found it quite short, and so settled down and waited till it was long enough to cut. A suitable condition of the snow was long in coming ; on June 29th I write :—"Will not the temperature rise sufficiently to make something like an effectual clearance of the snow. We try to pass the time as best we can in talking of how delightful it will be when we get home, and how we shall enjoy life and all its charms, and go through a calculation of chances as to how soon that may be ; but sometimes, too, we talk of how well we will arrange for the winter in Spitzbergen, if we should not reach home this year. If it should come to that, we may not even get so far, but have to winter on some place ashore here—no, it can never come to that !"

"Sunday, June 30th. So this is the end of June, and we are about the same place as when we began the month. And the state of the snow? Well, better it certainly is not; but the day is fine. It is so warm that we are quite hot lying here inside the tent. Through the open door we can see out over the ice where the sun is glittering through white sailing cirrus clouds on the dazzling whiteness. And then there is a Sunday calm, with a faint breeze mostly from the south-east, I think. Ah me, it is lovely at home to-day, I am sure, with everything in bloom and the fjord quivering in the sunlight; and you are sitting out on the point with Liv, perhaps, or are on the water in your boat. And then my eye wanders out through the door again, and I am reminded there is many an ice-floe between now and then, before the time when I shall see it all once more.

"Here we lie far up in the north; two grim, black, soot-stained barbarians, stirring a mess of soup in a kettle and surrounded on all sides by ice; by ice and nothing else—shining and white, possessed of all the purity we ourselves lack. Alas, it is all too pure! One's eye searched to the very horizon for a dark spot to rest on, but in vain. When will it really come to pass? Now we have waited for it two months. All the birds seem to have disappeared to-day; not even a cheery little auk to be seen. They were here until yesterday and we have heard them flying north and south, probably to and from land, where they have gone, I

suppose, now that there is so little water about in these parts. If only we could move as easily as they."

"Wednesday, July 3rd. Why write again? What have I to commit to these pages? Nothing but the same overpowering longing to be home and away from this monotony, One day just like the other, with the exception, perhaps, that before it was warm and quiet, while the last two days there has been a south wind blowing, and we are drifting northwards. Found from a meridian altitude yesterday that we have drifted back to 82° 8·4′ N., while the longitude is about the same. Both yesterday and the day before we had to a certain extent really brilliant sunshine, and this for us is a great rarity. The horizon in the south was fairly clear yesterday, which it has not been for a long time; but we searched it in vain for land. I do not understand it. . . .

"We had a fall of snow last night, and it dripped in here so that the bag became wet. This constant snowfall, which will not turn to rain, is enough to make one despair. It generally takes the form of a thick layer of new snow on the top of the old, and this delays the thaw.

"This wind seems to have formed some lanes in the ice again, and there is a little more bird-life. We saw some little auks again yesterday; they came from the south, probably from land."

"Saturday, July 6th. + 33·8° Fahr. (+ 1° C.). Rain. At last, after a fortnight, we seem to have got

the weather we have been waiting for. It has rained the whole night and forenoon, and is still at it, real good rain; so now, perhaps, this everlasting snow will take itself off; it is as soft and loose as scum. If only this rain would go on for seven days! But before we have time to look round there will be a cold wind with snow, a crust will form and again we must wait. I am too used to disappointment to believe in anything. This is a school of patience; but nevertheless the rain has put us in good spirits.

"The days drag wearily on. We work in an intermittent way at the kayak-grips of wood for our sledges, and at caulking and painting our kayaks to make them water-tight. The painting, however, causes me a good deal of trouble. I burned bones here for many days till the whole place smelled like the bone-dust works at Lysaker; then came the toilsome process of pounding and grating them to make them perfectly fine and even. The bone-dust was thereupon mixed with train oil, and at last I got as far as a trial, but the paint proved uncompromisingly to be perfectly useless. So now I must mix it with soot, as I had first intended and add more oil. I am now occupied in smoking the place out in my attempts to make soot, but all my exertions, when it comes to collecting it, only result in a little pinch, although the smoke towered in the air, and they might have seen it in Spitzbergen. There is a great deal to do battle with when one has not a shop next door. What

would I not give for a little bucket of oil-paint, only common lamp black! Well, well, we shall find a way out of the difficulty eventually; but meanwhile we are growing like sweeps.

MY LAST DOG, "KAIFAS."

"On Wednesday evening 'Haren' was killed; poor beast, he was not good for much latterly, but he had been a first-rate dog, and it was hard, I fancy, for Johansen to part with him; he looked sorrowfully at the

animal before it went to the happy hunting-grounds, or wherever it may be draught-dogs go to; perhaps to places where there are plains of level ice and no ridges and lanes. There are only two dogs left now—'Suggen' and 'Kaifas'—and we must keep them alive as long as we can, and have use for them.

"The day before yesterday, in the evening, we suddenly discovered a black hillock to the east. We examined it through the glass and it looked absolutely like a black rock emerging from the snows. It also somewhat exceeded the neighbouring hummocks in height. I scrutinised it carefully from the highest ridge hereabouts, but could not make it out. I thought it too big to be only a piled-up hummock mixed with black ice or earthy matter, and I have never seen anything of the kind before. That it is an island seems highly improbable; for although we are certainly drifting, it remains in the same position in relation to us. We saw it yesterday, and see it still to-day in the same quarter. I think the most reasonable supposition is that it is an ice-berg.

"No sooner does the horizon clear in the south than one of us may be seen taking his customary walk to the 'watch-tower' (a hummock beside the tent) to scan for land, sometimes with a glass, sometimes without it; but there is nothing to be seen but the same bare horizon.*

"Every day I take a turn round the ice in our neigh-

* Compare, however, what I say on this subject later, *i.e.*, July 24th.

bourhood to see if the snow has decreased, but it always seems to be about the same, and sometimes I have moments of doubt as to whether it will clear away at all this summer. If not, our prospects will be more than dark. The best we can hope for will then be a winter somewhere or other on Franz Josef Land. But now the rain has come. It is pouring down the tent walls and dripping on the ice. Everything looks hopeful again, and we are picturing the delights of the autumn and winter at home!"

"Wednesday, July 10th. It is a curious thing that now, when I really have something of a little more interest than usual to relate, I have less inclination to write than ever. Everything seems to become more and more indifferent. One longs only for one single thing, and still the ice is lying out there covered with impassable snow.

"But what was it I had to say? Oh, yes, that we made ourselves such a good bed yesterday with bear-skins under the bag, that we slept the clock round without knowing it, and I thought it was six in the morning when I turned out. When I came out of the tent I thought there was something remarkable about the position of the sun, and pondered over it for a little while, until I came to the conclusion that it was six in the evening, and that we had slumbered for twenty-two hours. We have not slept much of late, as we have been broken on the wheel, so to speak, by the snowshoes we had to place under the bag, in order to keep it clear of the pools of

water under us. The apologies for hair still existing here and there on the skin at the bottom of the bag do not afford much protection against the sharp edges of the snowshoes.

"This beneficent rain continued the whole day on Saturday, doing away with a fair amount of snow, and we rejoice to hear it. To celebrate the good weather we determined to have chocolate for supper; otherwise we live entirely on our catch. We had the chocolate accordingly, and served with raw blubber it tasted quite excellent. It was the cause of a great disappointment, however, for after having looked forward immoderately to this, now so rare, treat, I managed clumsily to upset my whole cup, so that all the precious contents ran out over the ice. While I was lying waiting for a second cup—it was boiling over the train-oil lamp—'Kaifas' began to bark outside. Not doubting but that he had seen an animal, I jumped up to hurry off to the look-out hummock to scan the ice. Not a little surprised was I when I poked my head out of the tent-door to see a bear come jogging up to the dogs and begin sniffing at 'Kaifas.' I sprang to the gun, which stood ready in the snow beside the tent, and pulled off the case, the bear meanwhile standing astonished and glaring at me. I sent it a ball through the shoulder and chest, certain that it would drop on the spot. It half staggered over, and then turned round and made off, and before I could extract a new cartridge from my pocket, which was full of everything else, was away among the hummocks. I could

not get a shot at it where it was, and set off in pursuit. I had not gone many steps before we saw (Johansen had followed me) two more heads appearing a little way farther on. They belonged to two cubs, which were standing on their hind-legs and looking at their mother, who came reeling towards them, with a trail of blood behind her. Then off they went, all three, over a lane, and a wild chase began over plains and ridges and lanes and every kind of obstacle, but it made no difference to their pace. A wonderful thing this love of sport; it is like setting fire to a fuze. Where at other times it would be laborious work to get on at all, where one sinks to the knees in the snow, and where one would hesitate before choosing a way over the lane, let only the spark be kindled, and one clears every obstacle without thinking about it. The bear was severely wounded, and dragged her left fore-leg; she did not go fast, but always so fast that I had my work cut out to keep near her. The cubs ran round her in their solicitude, and generally a little way in front, as if to get her to come with them; they little knew what was the matter with her. Suddenly they all three looked back at me as I was crashing after them as fast as I could. I had been within range many times, but the bear had her hind-quarters towards me, and when I fired I meant to be sure of making an end of her, as I only had three cartridges with me, one for each of them. At last, on the top of a huge hummock, I got a sight of her broadside on, and there, too, she dropped.

The cubs hurried anxiously up to her when she fell—it made one sorry to see them—they sniffed at and pushed her, and ran round and round, at a loss what to do in their despair. Meanwhile I had put another cartridge in the rifle, and picked off the other cub as it was standing on a projection. It fell over the declivity with a growl, and down on to its mother. Still more frightened than before, the other cub hastened to its succour; but, poor thing, what could it do? While its brother rolled over, growling, it stood there looking sorrowfully sometimes at it, sometimes at the mother, who lay dying in a pool of blood. When I approached it turned its head away indifferently; what did it care about me now? All its kindred, everything it held dear, lay there mutilated and destroyed. It no longer knew whither to go, and did not move from the spot. I went right up to it, and, with a spherical ball through the breast, it fell dead beside its mother.

"Johansen soon came up. A lane had detained him, so that he had lost ground. We opened the animals, took out the entrails, and then went back to the tent to fetch the sledges and dogs and proper flaying-knives. Our second cup of chocolate in the tent tasted very good after this interruption. When we had skinned and cut up the two bears we left them in a heap, covered over with the skins to protect the meat from the gulls; the third one we took back with us. The next day we fetched the others, and now have more meat food than we shall be able to

consume, I hope. It is a good thing, though, that we can give the dogs as much raw meat as they will eat; they certainly require it. 'Suggen,' poor thing, is in a very bad way, and it is a question whether we can get any more work out of him. When we took him with us after the bears the first day, he could not walk, and we had to place him on the sledge; but then he howled so terrifically, as much as to say it was beneath his dignity to be transported in this way, that Johansen had to take him home again. The dogs seem to be attacked with a paralysis of the legs: they fall down, and have the greatest difficulty in rising. It has been the same with all of them, from 'Gulen' downwards. 'Kaifas,' however, is as fresh and well as ever.

"It is remarkable how large these cubs were. I could hardly imagine that they were born this year, and should without hesitation have put them down as a year old if the she-bear had not been in milk, and it is hardly to be supposed that the cubs would suck for a year and a half. Those we shot by the *Fram* on November 4th last year were hardly half the size of these. It would seem as if the polar bear produces its young at different times of the year. In the paunches of the cubs were pieces of skin from a seal."

"Monday, July 15th. As we were working at the kayaks yesterday, a Ross's gull (*Radostethia rosea*) came flying by. It was a full-grown bird, and made a turn when just over us, showing its pretty rose-coloured

breast, and then disappeared again in the mist southwards. On Thursday I saw another adult Ross's gull, with a black ring round its neck; it came from the north-east, and flew in a south-westerly direction. Otherwise it is remarkable how all the birds have disappeared from here. The little auk is no longer to be seen or heard; the only birds are an ivory gull now and then and occasionally a fulmar."

"Wednesday, July 17th. At last the time is drawing near when we can be off again and start homewards in earnest. The snow has decreased sufficiently to make advance fairly easy. We are doing our utmost to get ready. The grips on the sledges are nicely arranged and provided with cushions of bear-skin on Johansen's and of cloth on mine. This is in order to give the kayaks a firm and soft bed and prevent chafing. The kayaks are painted with soot and train-oil, and have been caulked with pastels (for drawing), crushed and also mixed with train-oil; that is to say, as far as these various ingredients would go. We are now using a mixture of stearine, pitch, and resin,* to finish up with. A thorough revision of our equipment will take place, and everything not absolutely invaluable will be left behind. We must say good-bye here to the sleeping-bag and tent.† Our

* This was taken in case it might be wanted for soldering the cooking apparatus or the German silver plates under the sledge-runners.

† We eventually decided to retain this, however.

days of comfort are past, and henceforth until we are on board the sloop* we will live under the open sky.

"Meanwhile we have lain here—'Longing Camp,' as we call it—and let the time slip by. We have eaten bear-meat morning, noon, and night, and, so far from being tired of it, have made the discovery that the breast of the cubs is quite a delicacy. It is remarkable that this exclusive meat and fat diet has not caused us the slightest discomfort in any way, and we have no craving for farinaceous food, although we might, perhaps, regard a large cake as the acme of happiness. Every now and then we cheer ourselves up with lime-juice grog, a blood-pancake, or some stewed whortleberries, and let our imaginations run riot over all the amenities of civilisation which we mean to enjoy to the full when we get home! Perhaps it will be many a long day before we get there, perhaps there will be many a hard trial to overcome. But no; I will believe the best. There are still two months of summer left, and in them something can be done."

"Friday, July 19th. Two full-grown Ross's gulls flew over here from the north-east and went west this morning. When far off they uttered cries which reminded me of that of the wryneck, and which I at first thought came from a little auk. They flew quite low, just over my head, and the rose-colour of their under-parts could be seen plainly. Another Ross's gull

* The vessel we expected to catch in Spitzbergen.

flew by here yesterday. It is strange that there should be so many of them. Where are we?"

"Tuesday, July 23rd. Yesterday forenoon we at last got clear of 'Longing Camp,' and now, I am thankful to say, we are again on the move. We have worked day and night to get off. First we thought it would be

JOHANSEN'S LAST DOG, "SUGGEN."

on the 19th, then the 20th, and then the 21st, but something always cropped up that had to be done before we could leave. The bread, which had been soaked in sea-water, had to be carefully dried in the frying-pan over the lamp, and this took several days; then the socks had to be patched, and the kayaks carefully looked over, etc. We were determined to start on our last journey

home in good repair, and so we did. Everything goes like wild-fire. The chances of progress are better than we expected, although the ice is anything but even : the sledges are lighter to draw now that everything that can be dispensed with is left behind, and the snow, too, has decreased considerably. On the last part of the journey yesterday we could even go without snowshoes, and, as a matter of course, progress among the ridges and irregularities, where they are difficult to manage, is quicker without them. Johansen performed a feat by crossing a lane alone in his kayak, with 'Suggen' lying on the fore-deck, while he himself knelt on the after-deck and balanced the craft as he paddled. I began to try the same with mine, but found it too cranky to risk the attempt and preferred to tow it over, with 'Kaifas' on the deck, while I went carefully alongside and jumped over on some pieces of ice.

"We have now the advantage of finding drinking-water everywhere. We are also eating our old provender again ; but, curiously enough, neither Johansen nor I think the farinaceous food as good as one might suppose after a month of meat diet. It is good to be under way again, and not the least pleasant part about it is our lighter sledges ; but then we certainly left a good deal behind at 'Longing Camp.' In addition to a respectable mound of meat and blubber, we left three fine bear-skins. Our friend the bag, too, is lying on the top of the bears, a quantity of wood

consisting of the boards from under the sledges, the snowshoes and other things, more than half of Blessing's fine medicaments — plaster of Paris bandages, soft steam - sterilised gauze bandages, hygroscopic cotton wadding—to say nothing of a good aluminium glass horizon, rope, our combined frying-pan and melter, half an aluminium cap belonging to the cooker, sheets of German silver, a train-oil lamp of the same, bags, tools, sail-cloth, Finn shoes, our wolf-skin fingerless gloves, also woollen ones, a geological hammer, half a shirt, socks, and other sundries, all strewn about in chaotic confusion. Instead of all these we have an augmentation in the form of a sack of dried seal's and bear's flesh and the other half of the aluminium cap full of blubber. We are now thoroughly divested of all superfluous articles, and there is hardly so much as a bit of wood to be had if one should want a stick to slip through the end of the hauling rope."

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CHAPTER VII.

Land at Last.

"Wednesday, July 24th. At last the marvel has come to pass—land, land, and after we had almost given up our belief in it! After nearly two years, we again see something rising above that never-ending white line on the horizon yonder—a white line which for countless ages has stretched over this lonely sea, and which for millenniums to come shall stretch in the same way. We are leaving it, and leaving no trace behind us; for the track of our little caravan across the endless plains has long ago disappeared. A new life is beginning for us; for the ice it is ever the same.

"It has long haunted our dreams, this land, and now it comes like a vision, like fairy-land. Drift-white, it arches above the horizon like distant clouds, which one is afraid will disappear every minute. The most wonderful thing is that we have seen this land all the time without knowing it. I examined it several times with the telescope from 'Longing Camp' in the belief that it might be snowfields, but always came to

the conclusion that it was only clouds, as I could never discover any dark point. Then, too, it seemed to change form, which, I suppose, must be attributed to the mist which always lay over it; but it always came back again at the same place with its remarkable regular curves. I now remember that dark crag we saw east of us at the camp, and which I took to be an iceberg. It must certainly have been a little islet* of some kind.

"The ice was worse and more broken than ever yesterday; it was, indeed, a labour to force one's way over pressure-ridges like veritable mountains, with valleys and clefts in between; but on we went in good spirits, and made some progress. At lanes where a crossing was difficult to find, we did not hesitate to launch kayaks and sledges, and were soon over in this manner. Sometimes after a very bad bit we would come across some flat ice for a short distance, and over this we would go like wildfire, splashing through ponds and puddles. While I was on ahead at one time yesterday morning, Johansen went up on to a hummock to look at the ice, and remarked a curious black stripe over the horizon; but he supposed it to be only a cloud, he said, and I thought no more about the matter. When, some while later, I also ascended a hummock to look at the ice, I became aware of the same black stripe; it ran obliquely from the horizon up into what I supposed to be a white bank

* This supposition is extremely doubtful.

of clouds. The longer I looked at this bank and stripe the more unusual I thought them, until I was constrained to fetch the glass. No sooner had I fixed it on the black part than it struck me at once that this must be land, and that not far off. There was a large snow-field out of which black rocks projected. It was not long before Johansen had the glass to his eye, and convinced himself that we really had land before us. We both of us naturally became highly elated. I then saw a similar white arching outline, a little farther east ; but it was for the most part covered with white mist from which it could hardly be distinguished, and moreover was continually changing form. It soon, however, came out entirely, and was considerably larger and higher than the former, but there was not a black speck to be seen on it. So this was what land looked like now that we had come to it! I had imagined it in many forms, with high peaks and glittering glaciers, but never like this. There was nothing kindly about this, but it was indeed no less welcome, and on the whole we could not expect it to be otherwise than snow-covered, with all the snow which falls here.

"So then we pitched the tent and had a feast suited to the occasion ; lobscouse made of potatoes (for the last time but one, we had saved them long for this occasion), pemmican, dried bear's- and seal's-flesh and bear tongues chopped up together. After this was a second course consisting of bread crumbs fried in bear's grease, also

vril-food and butter, and a piece of chocolate to wind up."

We thought this land so near that it could not possibly take long to reach it, certainly not longer than till next evening. Johansen was even certain that we should do it the same day, but nevertheless thirteen days were to elapse, occupied in the same monotonous drudgery over the drift-ice.

On July 25th I write:—"When we stopped in the fog yesterday evening we had a feeling that we must have come well under land. This morning when we turned out, the first thing Johansen did when he went to fetch some water for me to cook with was, of course, to climb up on the nearest hummock and look at the land. There it lay, considerably nearer than before, and he is quite certain that we shall reach it before night." I also discovered a new land to our west (S. 60° W. magnetic) that day; a regular, shield-like, arched outline, similar to the other land; and it was low above the horizon, and appeared to be a long way off.*

We went on our way as fast as we could across lanes and rough ice, but did not get far in the day, and the land did not seem to be much nearer. In reality there was no difference to be seen, although we tried to imagine that it was steadily growing higher. On Saturday, July 27th, I seem to have a suspicion that

* It proved later that this must be Crown Prince Rudolf Land.

in point of fact we were drifting away from land, I write :—"The wind began to blow from the S.S.W. (magnetic), just as we were getting off yesterday, and increased as the day went on. It was easy to perceive by the atmosphere that the wind was driving the ice off the land and land-lanes formed particularly on the east side of it. When I was up on a hummock, yesterday evening, I observed a black stripe on the horizon under land ; I examined it with the glass, and as I had surmised there was an ice-edge or glacier stretching far in a westerly direction ; and there was plainly a broad lane in front of it, to judge by the dark bank of mist which lay there. It seems to me that land cannot be far off, and if the ice is tolerably passable we may reach it to-day. The wind continued last night, but it has quieted down now, and there is sunshine outside. We try by every means in our power to get a comfortable night's rest in our new bag of blankets. We have tried lying on the bare ice, on the snowshoes, and to-night on the bare ice again ; but it must be confessed that it is hard and never will be very comfortable ; a little chilly, too, when one is wet—but we shall appreciate a good warm bed all the more when we get it."

"Tuesday, July 30th. We make incredibly slow progress ; but we are pushing our way nearer land all the same.* Every kind of hindrance seems to beset us: now

* In reality we were probably farther from it than before.

I am suffering so much from my back (lumbago?) that yesterday it was only by exerting all my strength of will that I could drag myself along. In difficult places Johansen had to help me with my sledge. It began yesterday, and at the end of our march he had to go first and find the way. Yesterday I was much worse, and how I am to-day I do not know before I begin to walk;

"INCREDIBLY SLOW PROGRESS."

but I ought to be thankful that I can drag myself along at all, though it is with endless pain. We had to halt and camp on account of rain yesterday morning at three, after only having gone nine hours. The rain succeeded in making us wet before we had found a suitable place for the tent. Here we have been a whole day while it

has been pouring down, and we have hardly become drier. There are puddles under us and the bag is soaked on the underside. The wind has gone round to the west just now, and it has stopped raining, so we made some porridge for breakfast and think of going on again ; but if it should begin to rain again we must stop, as it will not do to get wet through when we have no change of clothes. It is anything but pleasant as it is to lie with wet legs and feet that are like icicles, and not have a dry thread to put on. Full-grown Ross's gulls were seen singly four times to-day, and when Johansen was out to fetch water this morning he saw two."*

"Wednesday, July 31st. The ice is as disintegrated and impracticable as can well be conceived. The continual friction and packing of the floes against each other grinds up the ice so that the water is full of brash and small pieces ; to ferry over this in the kayaks is impossible, and the search is long before we eventually find a hazardous crossing. Sometimes we have to form one by pushing small floes together, or must ferry the sledges over on a little floe. We spend much time and labour on each single lane, and progress becomes slow in this way. My back still painful, Johansen had to go ahead yesterday also ; and evening and morning he is obliged to take off my boots and socks, for I am unable to do it myself.

* We saw more and more of these remarkable birds the farther we went.

He is touchingly unselfish, and takes care of me as if I were a child ; everything he thinks can ease me he does quietly, without my knowing it. Poor fellow, he has to work doubly hard now, and does not know how this will end. I feel very much better to-day, however, and it is to be hoped shall soon be all right."

"Thursday, August 1st. Ice with more obstacles than here—is it to be found, I wonder? But we are working slowly on, and that being the case we ought, perhaps, to be satisfied. We have also had a change—a brilliantly fine day ; but it seems to me the south wind we have had, and which opened the lanes, has put us a good way farther off land again. We have also drifted a long distance to the east, and no longer see the most westerly land with the black rocks, which we remarked at first. It would seem as if the Ross's gulls keep to land here ; we see them daily.

"One thing, however, I am rejoicing over ; my back is almost well, so that I shall not delay our progress any more. I have some idea now what it would be like if one of us became seriously ill. Our fate would then be sealed, I think."

"Friday, August 2nd. It seems as if everything conspired to delay us, and that we shall never get away from this drift-ice. My back is well again now ; the ice was more passable yesterday than before, so that we nearly made a good day's march ; but in return wind and current set us from shore, and we are farther away again.

Against these two enemies all fighting is in vain, I am afraid. We have drifted far off to the south-east, have got the north point of the land about due west of us, and we are now in about 81° 36′ N. My only hope now is that this drift eastwards, away from land, may stop or alter its course, and thus bring us nearer land. It is unfortunate that the lanes are covered with young ice, which it would be disastrous to put the kayaks through. If this gets worse, things will look very bad. Meanwhile we have nothing to do but go on as fast as we can. If we are going to drift back into the ice again, then—then——"

"Saturday, August 3rd. Inconceivable toil. We never could go on with it were it not for the fact that we *must*. We have made wretchedly little progress even if we have made any at all. We have had no food for the dogs the last few days except the ivory gulls and fulmars we have been able to shoot, and that has been a couple a day. Yesterday the dogs only had a little bit of blubber each."

"Sunday, August 4th. These lanes are desperate work and tax one's strength. We often have to go several hundred yards on mere brash or from block to block, dragging the sledges after us, and in constant fear of their capsizing into the water. Johansen was very nearly in yesterday, but, as always hitherto, he managed to save himself. The dogs fall in and get a bath continually."

"THIS INCESSANT TOIL."

"Monday, August 5th. We have never had worse ice than yesterday, but we managed to force our way on a little, nevertheless, and two happy incidents marked the day: the first was that Johansen was not eaten up by a bear; and the second, that we saw open water under the glacier edge ashore.

"We set off about 7 o'clock yesterday morning and got on to ice as bad as it could be. It was as if some giant had hurled down enormous blocks pell-mell, and had strewn wet snow in between them with water underneath; and into this we sank above our knees. There were also numbers of deep pools in between the blocks. It was like toiling over hill and dale, up and down over block after block, and ridge after ridge, with deep clefts in between; not a clear space big enough to pitch a tent on even, and thus it went on the whole time. To put a coping-stone to our misery, there was such a mist that we could not see a hundred yards in front of us. After an exhausting march we at last reached a lane where we had to ferry over in the kayaks. After having cleared the side of the lane from young ice and brash, I drew my sledge to the edge of the ice, and was holding it to prevent it slipping in, when I heard a scuffle behind me, and Johansen, who had just turned round to pull his sledge flush with mine,* cried: 'Take the gun!' I

* As a rule, we crossed the lanes in this manner: we placed the sledges, with the kayaks on, side by side, lashed them together,

turned round and saw an enormous bear throwing itself on him, and Johansen on his back. I tried to seize my gun, which was in its case on the fore-deck, but at the same moment the kayak slipped into the water. My first thought was to throw myself into the water over the kayak and fire from there, but I recognised how risky it

"YOU MUST LOOK SHARP."

would be. I began to pull the kayak, with its heavy cargo, on to the high edge of the ice again as quickly as I

stiffened them by running the snowshoes across under the straps, which also steadied them, and then launched them as they were, with the sledges lashed underneath. When across we had only to haul them up on the other side.

could, and was on my knees pulling and tugging to get at my gun. I had no time to look round and see what was going on behind me, when I heard Johansen quietly say : 'You must look sharp if you want to be in time.'

"Look sharp? I should think so! At last I got hold of the butt-end, dragged the gun out, turned round in a sitting posture, and cocked the shot-barrel. The bear was standing not two yards off, ready to make an end of my dog, 'Kaifas.' There was no time to lose in cocking the other barrel, so I gave it a charge of shot behind the ear, and it fell down dead between us.

"The bear must have followed our track like a cat, and, covered by the ice-blocks, have slunk up while we were clearing the ice from the lane and had our backs to him. We could see by the trail how it had crept over a small ridge just behind us under cover of a mound by Johansen's kayak. While the latter, without suspecting anything or looking round, went back and stooped down to pick up the hauling-rope, he suddenly caught sight of an animal crouched up at the end of the kayak, but thought it was 'Suggen'; and before he had time to realise that it was so big he received a cuff on the ear which made him see fireworks, and then, as I mentioned before, over he went on his back. He tried to defend himself as best he could with his fists. With one hand he seized the throat of the animal, and held fast, clenching it with all his might. It

was just as the bear was about to bite Johansen in the head that he uttered the memorable words, 'Look sharp'! The bear kept glancing at me continually, speculating, no doubt, as to what I was going to do; but then caught sight of the dog and turned towards it. Johansen let go as quick as thought, and wriggled himself away, while the bear gave 'Suggen' a cuff which made him howl lustily, just as he does when we thrash him. Then 'Kaifas' got a slap on the nose. Meanwhile Johansen had struggled to his legs, and when I fired had got his gun, which was sticking out of the kayak hole. The only harm done was that the bear had scraped some grime off Johansen's right cheek, so that he has a white stripe on it, and had given him a slight wound in one hand; 'Kaifas' had also got a scratch on his nose.

"Hardly had the bear fallen before we saw two more peeping over a hummock a little way off — cubs who, naturally, wanted to see the result of the maternal chase. They were two large cubs. I thought it was not worth while to sacrifice a cartridge on them, but Johansen expressed his opinion that young bear's flesh was much more delicate in flavour than old. He would only shoot one, he said, and started off. However, the cubs took to their heels, although they came back a little while later, and we could hear them at a long distance growling after their mother.

"Johansen sent one of them a ball, but the range was too long, and he only wounded it. With some terrific

growls, it started off again, and Johansen after it; but he gave up the chase soon, as he saw it promised to be a long one. While we were cutting up the she-bear the cubs came back on the other side of the lane, and the whole time we were there we had them walking round us. When we had fed the dogs well, and had eaten some of the raw meat ourselves, and had furthermore stowed away in the kayaks the meat we had cut off the legs, we at last ferried over the lane and went on our way.

"The ice was not good; and, to make bad worse, we immediately came on some terrible lanes, full of nothing but tightly packed lumps of ice. In some places there were whole seas of it, and it was enough to make one despair. Among all this loose ice we came on an unusually thick old floe, with high mounds on it and pools in between. It was from one of these mounds that I observed through the glass the open water at the foot of the glacier, and now we cannot have far to go. But the ice looks very bad on ahead, and each piece when it is like this may take a long time to travel over.

"As we went along we heard the wounded bear lowing ceaselessly behind us; it filled the whole of this silent world of ice with its bitter plaint over the cruelty of man. It was miserable to hear it; and if we had had time, we should undoubtedly have gone back and sacrificed a cartridge on it. We saw the cubs go off to the place where the mother was lying, and thought to

ourselves that we had got rid of them, but heard them soon afterwards, and even when we had camped they were not far off."

"Wednesday, August 7th. At last we are under land; at last the drift-ice lies behind us, and before us is open water, open, it is to be hoped, to the end. Yesterday was the day. When we came out of the tent the evening of the day before yesterday we both thought we must be nearer the edge of the glacier than ever, and with fresh courage, and in the faint hope of reaching land that day, we started on our journey. Yet we dared not think our life on the drift-ice was so nearly at an end. After wandering about on it for five months and suffering so many disappointments, we were only too well prepared for a new defeat. We thought, however, that the ice looked more promising farther on, though before we had gone far we came to broad lanes full of slush and foul, uneven ice, with hills and dales, and deep snow and water, into which we sank up to our thighs. After a couple of lanes of this kind, matters improved a little, and we got on to some flat ice. After having gone over this for a while, it became apparent how much nearer we were to the edge of the glacier. It could not possibly be far off now. We eagerly harnessed ourselves to the sledges again, put on a spurt, and away we went through snow and water, over mounds and ridges. We went as hard as we could, and what did we care if we sank into water till far above our fur leggings, so

that both they and our 'komager' filled and gurgled like a pump? What did it matter to us now so long as we got on?

"We soon reached plains, and over them we went quicker and quicker. We waded through ponds where the spray flew up on all sides. Nearer and nearer we came, and by the dark water-sky before us, which continually rose higher, we could see how we were drawing near to open water. We did not even notice bears now. There seemed to be plenty about, tracks, both old and new, crossing and recrossing; one had even inspected the tent while we were asleep, and by the fresh trail we could see how it had come down wind in lee of us. We had no use for a bear now: we had food enough. We were soon able to see the open water under the wall of the glacier, and our steps lengthened even more. As I was striding along, I thought of the march of the Ten Thousand through Asia, when Xenophon's soldiers, after a year's war against superior forces, at last saw the sea from a mountain and cried, 'Thalatta! thalatta!' Maybe this sea was just as welcome to us after our months in the endless white drift-ice.

"At last, at last, I stood by the edge of the ice. Before me lay the dark surface of the sea, with floating white floes; far away the glacier wall rose abruptly from the water; over the whole lay a sombre, foggy light. Joy welled up in our hearts at this sight, and we could not give it expression in words. Behind us lay all our

troubles, before us the waterway home. I waved my hat to Johansen, who was a little way behind, and he waved his in answer and shouted, 'Hurrah!' Such an event had to be celebrated in some way, and we did it by having a piece of chocolate each.

"While we were standing there looking at the water the large head of a seal came up, and then disappeared silently; but soon more appeared. It is very reassuring to know that we can procure food at any minute we like.

"Now came the rigging of the kayaks for the voyage. Of course, the better way would have been to paddle singly, but, with the long, big sledges on the deck, this was not easy, and leave them behind I dared not; we might have good use for them yet. For the time being, therefore, there was nothing else to be done but to lash the two kayaks together side by side in our usual manner, stiffen them out with snowshoes under the straps, and place the sledges athwart them, one before and one behind.

"It was sad to think we could not take our two last dogs with us, but we should probably have no further use for them, and it would not have done to take them with us on the decks of our kayaks. We were sorry to part with them; we had become very fond of these two survivors. Faithful and enduring, they had followed us the whole journey through; and, now that better times had come, they must say farewell to life. Destroy them in the same way as the others, we could not; we

WE REACH THE OPEN WATER. 6 AUGUST, 1895.

(By Lars Jorde, from a photograph.)

sacrificed a cartridge on each of them. I shot Johansen's, and he shot mine.

"So then we were ready to set off. It was a real pleasure to let the kayaks dance over the water and hear the little waves plashing against the sides. For two years we had not seen such a surface of water before us. We had not gone far before we found that the wind was so good that we ought to make use of it, and so we rigged up a sail on our fleet. We glided easily before the wind in towards the land we had so longed for all these many months. What a change after having forced one's way inch by inch and foot by foot on ice! The mist had hidden the land from us for a while, but now it parted, and we saw the glacier rising straight in front of us. At the same moment the sun burst forth, and a more beautiful morning I can hardly remember. We were soon underneath the glacier, and had to lower our sail and paddle westwards along the wall of ice, which was from 50 to 60 feet in height, and on which a landing was impossible. It seemed as if there must be little movement in this glacier; the water had eaten its way deep underneath it at the foot, and there was no noise of falling fragments or the cracking of crevasses to be heard, as there generally is with large glaciers. It was also quite even on the top, and no crevasses were to be seen. Up the entire height of the wall there was stratification, which was unusually marked. We soon discovered that a tidal

current was running westwards along the wall of the glacier with great rapidity, and took advantage of it to make good progress. To find a camping-ground, however, was not easy, and at last we were reduced to taking up our abode on a drifting floe. It was glorious, though, to go to rest in the certainty that we should not wake to drudgery in the drift-ice.

"When we turned out to-day we found that the ice had packed around us, and I do not know yet how we shall get out of it, though there is open water not far off to our west."

"Thursday, August 8th. After hauling our impedimenta over some floes we got into open water yesterday without much difficulty. When we had reached the edge of the water, we made a paddle each from our snowshoe-staffs, to which we bound blades made of broken-off snowshoes. They were a great improvement on the somewhat clumsy paddles, with canvas blades lashed to bamboo sticks. I was very much inclined to chop off our sledges, so that they would only be half as long as before; by so doing we could carry them on the after-deck of the kayaks, and could thus each paddle alone, and our advance would be much quicker than by paddling the twin kayaks. However, I thought, perhaps, it was unadvisable. The water looked promising enough on ahead, but there was mist, and we could not see far; we knew nothing of the country or the coast we had come to, and might yet have good use for the

sledges. We therefore set off in our double kayak, as before, with the sledges athwart the deck fore and aft.

"The mist soon rose a little; it was then a dead calm; the surface of the water lay like a great mirror before us, with bits of ice and an occasional floe drifting on it. It was a marvellously beautiful sight, and it was indeed glorious to sit there in our light vessels and glide over the surface without any exertion. Suddenly a seal rose in front of us, and over us flew continually ivory gulls and fulmars and kittiwakes. Little auks we also saw, and some Ross's gulls, and a couple of terns. There was no want of animal-life here, nor of food when we should require it.

"We found open water, broader and broader, as we paddled on our way beside the wall of ice; but it would not clear so that we could see something of our surroundings. The mist still hung obstinately over it.

"Our course, at first, lay west to north (magnetic); but the land always trended more and more to the west and south-west; the expanse of water grew greater and soon it widened out to a large sea, stretching in a south-westerly direction. A breeze sprang up from the north-north-east, and there was considerable motion which was not pleasant, as in our double craft the seas continually washed up between the two and wetted us. We put in towards evening and pitched the tent on the shore-ice, and just as we did so it began to rain, so that it was high time to be under a roof."

"Friday, August 9th. Yesterday morning we had again to drag the sledges with the kayaks over some ice which had drifted in front of our camping ground, and during this operation I managed to fall into the water and get wet. It was with difficulty we finally got through and out into open water. After a while we again found our way closed, and were obliged to take to hauling over some floes, but after this we had good open water the whole day. It was a north-easterly wind which had set the ice towards the land, and it was lucky we had got so far, as behind us, to judge by the atmosphere, the sea was much blocked. The mist hung over the land so that we saw little of it. According as we advanced we were able to hold a more southerly course, and the wind being nearly on the quarter we set sail about 1 o'clock, and continued sailing all day till we stopped yesterday evening. Our sail, however, was interrupted once when it was necessary to paddle round an ice point north of where we are now; the contrary current was so strong that it was as much as we could do to make way against it, and it was only after considerable exertion that we succeeded in doubling the point. We have seen little of the land we are skirting up to this on account of the mist; but as far as I can make out it consists of islands. First there was a large island covered with an ice-sheet; then west of it a smaller one, on which are the two crags of rock which first made us aware of the vicinity of land; next came a long fjord or

sound with massive shore-ice in it; and then a small, low headland, or rather an island, south of which we are now encamped. This shore-ice lying along the land is very remarkable. It is unusually massive and uneven; it seems to be composed of huge blocks welded together, which in a great measure, at any rate, must proceed from the ice-sheet. There has also, perhaps, been violent pressure against the land, which has heaved the sea-ice up together with pieces of ice from the calving of the glacier, and the whole has frozen together into a conglomerate mass. A medium-sized iceberg lay off the headland north of us, where the current was so strong. Where we are now lying, however, there is flat fjord-ice between the low island here and a larger one farther south.

"This land grows more of a problem, and I am more than ever at a loss to know where we are. It is very remarkable to me that the coast continually trends to the south instead of to the west. I could explain it all best by supposing ourselves to be on the west coast of the archipelago of Franz Josef Land, were it not that the variation, I think, is too great, and also for the number of Ross's gulls there still are. Not one has with certainty been seen in Spitzbergen, and if my supposition is right this should not be far off. Yesterday we saw a number of them again; they are quite as common here as the other species of gull."

"Saturday, August 10th. We went up on to the

little islet we had camped by. It was covered by a glacier, which curved over it in the shape of a shield; there were slopes to all sides; but so slight was the gradient that our snowshoes would not even run of themselves on the crust of snow. From the ridge we had a fair view, and, as the mist lifted just then, we saw the land about us tolerably well. We now perceived plainly that what we had been skirting along was only islands. The first one was the biggest. The other land, with the two rocky crags, had, as we could see, a strip of bare land along the shore on the north-west side. Was it there, perhaps, the Ross's gulls congregated, and had their breeding-grounds? The island to our south also looked large; it appeared to be entirely covered by a glacier.* Between the islands, and as far as we could perceive south-east and east, the sea was covered by perfectly flat fjord-ice, but no land was to be discerned in that direction. There were no icebergs here, though we saw some later in the day on the south side of the island lying to the south of us.

"The glacier covering the little island on which we stood joined the fjord-ice almost imperceptibly, only a few small fissures along the shore indicated where it probably

* The first island I called "Eva's Island," the second "Liv's Island," and the little one we were then on "Adelaide's Island." The fourth island south of us had, perhaps, already been seen by Payer, and named by him "Freeden Island." The whole group of islands I named "Hvidtenland" (White Land).

began. There could not be any great rise and fall in the ice here, consequent on the tide, as the fissures would then, as a matter of course, have been considerably larger. This seemed remarkable, as the tidal current ran swift as a river here. On the west side of the island there lay in front of the glacier a rampart of ice and snow, which was probably formed of pieces of glacier-ice and sea-ice welded together. It had the same character as the massive shore-ice which we had seen previously running along the land. This rampart went over imperceptibly with an even slope into the glacier within it.

"About three in the afternoon we finally set off in open water and sailed till eight or so in the evening; the water was then closed, and we were compelled to haul the fleet over flat ice to open water on the other side. But here, too, our progress seemed blocked, and as the current was against us we pitched the tent."

On August 10th we were "compelled partly to haul our sledges over the ice, partly to row in open water in a south-westerly direction. When we reached navigable waters again, we passed a flock of walruses lying on a floe. It was a pleasure to see so much food collected at one spot, but we did not take any notice of them as, for the time being, we had meat and blubber enough. After dinner we managed, in the mist, to wander down a long bay into the shore-ice where there was no outlet; we had to turn back, and this delayed us considerably. We now

kept a more westerly course, following the often massive and uneven edge of the ice; but the current was dead against us, and in addition young ice had been forming all day as we rowed along; the weather had been cold and still, with falling snow, and this began to be so thick that we could not make way against it any longer. We therefore went ashore on the ice, and hauled until ten in the evening.

"Bear-tracks, old and new, in all directions, both the single ones of old bachelors and those of she-bears with cubs. It looks as if they had had a general rendezvous, or as if a flock of them had roamed backwards and forwards. I have never seen so many bear-tracks in one place in my life.

"We have certainly done 14 or 15 miles to-day; but still I think our progress is too slow if we are to reach Spitzbergen this year, and I am always wondering if we ought not to cut the ends off our sledges so that each can paddle his own kayak. This young ice, however, which grows steadily worse and the eleven degrees below freezing we now have make me hold my hand. Perhaps winter is upon us, and then the sledges may be very necessary.

"It is a curious sensation to paddle in the mist as we are doing without being able to see a mile in front of us. The land we found we have left behind us. We are always in hopes of clear weather in order to see where the land lies in front of us—for land there must be.

This flat unbroken ice must be attached to land of some kind; but clear weather we are not to have, it appears. Mist without ceasing; we must push on as it is."

After having hauled some distance farther over the ice, we came to open water again the following day (August 11th) and paddled for four or five hours. While I was on a hummock inspecting the waters ahead, a huge monster of a walrus came up quite near us. It lay puffing and glaring at us on the surface of the water, but we took no notice of it, got into our kayaks and went on. Suddenly it came up again by the side of us, raised itself high out of the water, snorted so that the air shook, and threatened to thrust its tusks into our frail craft. We seized our guns, but at the same moment it disappeared, and came up immediately afterwards on the other side, by Johansen's kayak, where it repeated the same manœuvre. I said to him that if the animal showed signs of attacking us we must spend a cartridge on it. It came up several times and disappeared again; we could see it down in the water passing rapidly on its side under our vessels, and afraid lest it should make a hole in the bottom with its tusks, we thrust our paddles down into the water and frightened it away; but suddenly it came up again right by Johansen's kayak, and more savage than ever. He sent it a charge straight in the eyes, it uttered a terrific bellow, rolled over and disappeared, leaving a trail of blood on the water behind it. We paddled on as hard as we could, knowing that the

shot might have dangerous consequences, but we were relieved when we heard the walrus come up far behind us at the place where it had disappeared.

We had paddled quietly on, and had long forgotten all about the walrus, when I suddenly saw Johansen jump into the air and felt his kayak receive a violent shock. I had no idea what it was, and looked round to see if some block of floating ice had capsized and struck the bottom of his kayak ; but suddenly I saw another walrus rise up in the water beside us. I seized my gun, and as the animal would not turn its head so that I could aim at a spot behind the ear where it is more easily wounded, I was constrained to put a ball in the middle of its forehead ; there was no time to be lost. Happily this was enough and it lay there dead and floating on the water. With great difficulty we managed to make a hole in the thick skin, and after cutting ourselves some strips of blubber and meat from the back we went on our way again.

At 7 in the evening the tidal current turned and the channel closed. There was no more water to be found. Instead of taking to hauling over the ice, we determined to wait for the opening of the channel when the tide should turn next day, and meanwhile to cut off the ends of our sledges, as I had so long been thinking of doing, and make ourselves some good double paddles so that we could put on greater pace, and, in our single kayaks, make the most of the channel during the time

it was open. While we were occupied in doing this the mist cleared off at last, and there lay land stretched out in front of us, extending a long way south and west from S.E. right up to N.N.W. It appeared to be a chain of islands with sounds between them. They were chiefly covered with glaciers, only here and there were perpendicular black mountain-walls to be seen. It was a sight to make one rejoice to see so much land at one time. But where were we? This seemed a more difficult question to answer than ever. Could we, after all, have arrived at the east side of Franz Josef Land? It seemed very reasonable to suppose this to be the case. But then we must be very far east, and must expect a long voyage before we could reach Cape Fligely, on Crown-Prince Rudolf Land. Meanwhile we worked hard to get the sledges ready, but as the mist gradually lifted, and it became clearer and clearer, we could not help continually leaving them, to climb up on to the hummock beside us to look at the country, and speculate on this insoluble problem. We did not get to bed till seven in the morning of August 12th.

"Tuesday, August 13th. After having slept a few hours, we turned out of the bag again, for the current had turned, and there was a wide channel. In our single kayaks we made good headway, but after going about five miles the channel closed, and we had to clamber on to the ice. We thought it advisable to wait until the tidal current turned, and see if there were not a channel

running farther. If not we must lash proper grips of wood to our curtailed sledges, and commence hauling towards a sound running through the land, which I see about W.N.W. (true), and which, according to Payer's Chart, I take to be Rawlinson's Sound."

But the crack did not open, and when it came to the point we had to continue on our way hauling.

"Wednesday, August 14th. We dragged our sledges and loads over a number of floes and ferried across lanes, arriving finally at a lane which ran westwards, in which we could paddle; but it soon packed together again, and we were stopped. The ivory gulls are very bold, and last night stole a piece of blubber lying close by the tent wall."

The following day we had to make our way as well as we could by paddling short distances in the lanes or hauling our loads over floes smaller or larger, as the case might be. The current, which was running like a mill race, ground them together in its career. Our progress with our short stumpy sledges was nothing very great, and of water suitable for paddling in we found less and less. We stopped several times and waited for the ice to open at the turn of the tide, but it did not do so, and on the morning of August 15th we gave it up, turned inwards and took to the shore ice for good. We set our course westwards towards the sound we had seen for several days now, and had struggled so to reach. The surface of the ice was

ICEBERG ON THE NORTH SIDE OF FRANZ JOSEF LAND.

tolerably even and we got over the ground well. On the way we passed a frozen-in iceberg, which was the highest we saw in these parts—some 50 to 60 feet, I should say.* I wished to go up it to get a better view of our environment, but it was too steep, and we did not get higher than a third part up the side.

"In the evening we at last reached the islands we had been steering for for the last few days, and for the first time for two years had bare land under foot. The delight of the feeling of being able to jump from block to block of granite† is indescribable, and the delight was not lessened when in a little sheltered corner among the stones we found moss and flowers, beautiful poppies (*Papaver nudicaule*) *Saxifraga nivalis*, and a *Stellaria* (*sp?*). It goes without saying that the Norwegian flag had to wave over this our first bare land, and a banquet was prepared. Our petroleum, meanwhile, had given out several days previously, and we had to contrive another lamp in which train-oil could be used. The

* Icebergs of considerable size have been described as having been seen off Franz Josef Land, but I can only say with reference to this that during the whole of our voyage through this archipelago we saw nothing of the kind. The one mentioned here was the biggest of all those we came across, and they were, compared with the Greenland icebergs, quite insignificant masses of glacier-ice.

† I have called it granite in my diary, but it was in reality a very coarse-grained basalt. The specimens I took have unfortunately been lost.

smoking hot lobscouse, made of pemmican and the last of our potatoes, was delicious, and we sat inside the tent and kicked the bare grit under us to our hearts' content.

"Where we are is becoming more and more incomprehensible. There appears to be a broad sound west of us, but what is it? The island* we are now on, and where we have slept splendidly (this is written on the morning of August 16th) on dry land, with no melting of the ice in puddles underneath us, is a long moraine-like ridge running about north and south (magnetic), and consists almost exclusively of small and large—generally very large—blocks of stone, with, I should say, occasional stationary crags. The blocks are in a measure rounded off, but I have found no striation on them. The whole island barely rises above the snow-field in which it lies, and which slopes in a gradual decline down to the surrounding ice. On our west there is a bare island, somewhat higher, which we have seen for several days. Along the shore there is a decided strand-line (terrace). North of us are two small islets and a small rock or skerry.

"As I mentioned before (August 13th) I had at first supposed the sound on our west to be Rawlinson's Sound, but this now appeared impossible as there was nothing to be seen of Dove Glacier, by which it is bounded on one side. If this was now our position, we

* "Houen's Island."

OUR FIRST CAMP ON BARE GROUND.

must have traversed the glacier and Wilczek Land without noticing any trace of either; for we had travelled westwards a good half degree south of Cape Buda-Pesth. The possibility that we could be in this region we consequently now held to be finally excluded. We must have come to a new land in the western part of Franz Josef Land or Archipelago, and so far west that we had seen nothing of the countries discovered by Payer. But so far west that we had not even seen anything of Oscar's Land, which ought to be situated in 82° N. and 52° E.? This was indeed incomprehensible; but was there any other explanation?

"Saturday, August 17th. Yesterday was a good day. We are in open water on the west coast of Franz Josef's Land, as far as I can make out, and may again hope to get home this year. About noon yesterday we walked across the ice from our moraine-islet to the higher island west of us. As I was ready before Johansen, I went on first to examine the island a little. As he was following me he caught sight of a bear on the level ice to leeward. It came jogging up against the wind straight towards him. He had his gun ready, but when a little nearer the bear stopped, reconsidered the situation, suddenly turned tail and was soon out of sight.

"This island* we came to seemed to me to be one of the

* "Torup's Island."

most lovely spots on the face of the earth. A beautiful flat beach, an old strand-line with shells strewn about, a narrow belt of clear water along the shore, where snails and sea-urchins (*Echinus*) were visible at the bottom, and amphipoda were swimming about. In the cliffs overhead were hundreds of screaming little auks, and beside us the snow buntings fluttered from stone to stone with their cheerful twitter. Suddenly the sun burst forth through the light fleecy clouds, and the day seemed to be all sunshine. Here was life and bare land; we were no longer on the eternal drift ice! At the bottom of the sea just beyond the beach I could see whole forests of seaweed (*Laminaria* and *Fucus*). Under the cliffs here and there were drifts of beautiful rose-coloured snow.*

"On the north side of the island we found the breeding-place of numbers of Glaucus gulls; they were sitting with their young in ledges of the cliffs. Of course we had to climb up and secure a photograph of this unusual scene of family life, and as we stood there high up on the cliff's side we could see the drift-ice whence we had come. It lay beneath us like a white plain, and disappeared far away on the horizon. Beyond

* This colour is owing to a beautiful minute red alga, which grows on the snow (generally *Spaerella nivalis*). There were also some yellowish-green patches in this snow, which must certainly be attributed to another species of alga.

this it was we had journeyed, and farther away still the *Fram* and our comrades were drifting yet.

"I had thought of going to the top of this island to get a better view, and perhaps come nearer solving the problem of our whereabouts. But when we were on the west side of it the mist came back and settled on the top; we had to content ourselves with only going a little way up the slope to look at our future course westward. Some way out we saw open water; it looked like the sea itself, but before one could get to it there was a good deal of ice. We came down again and started off. Along the land there was a channel running some distance farther, and we tried it, but it was covered everywhere with a thin layer of new ice which we did not dare to break through in our kayaks, and risk cutting a hole in them; so, finally, a little way farther south we put in to drag up the kayaks and take to the ice again. While we were doing this one huge bearded seal after another stuck its head up by the side of the ice and gazed wonderingly at us with its great eyes; then, with a violent header, and splashing the water in all directions, it would disappear, to come up again soon afterwards on the other side. They kept playing round us, blowing, diving, reappearing, and throwing themselves over so that the water foamed round them. It would have been easy enough to capture one had we required it.

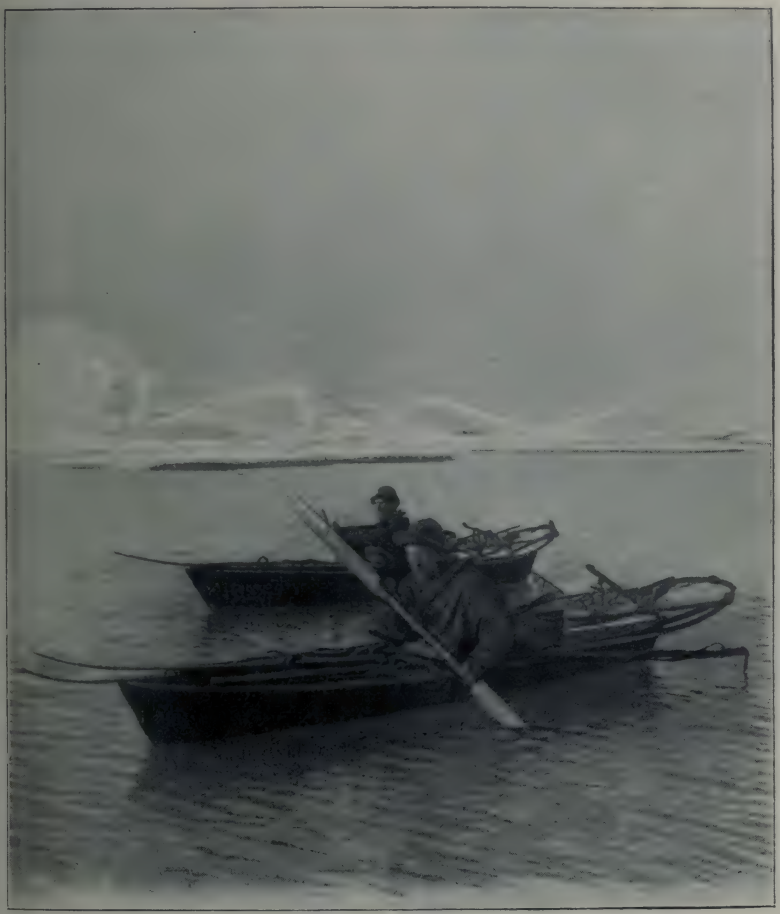
"At last, after a good deal of exertion, we stood at the margin of the ice; the blue expanse of water lay before

us as far as the eye could reach, and we thought that for the future we had to do with it alone. To the north* there was land, the steep, black, basalt cliffs of which fell perpendicularly into the sea. We saw headland after headland standing out northwards, and farthest off of all we could descry a bluish glacier. The interior was everywhere covered with an ice-sheet. Below the clouds, and over the land, was a strip of ruddy, night sky, which was reflected in the melancholy, rocking sea.

"So we paddled on along the side of the glacier which covered the whole country south of us. We became more and more excited as we approached the headland to the west. Would the coast trend south here, and was there no more land westward? It was this we expected to decide our fate: decide whether we should reach home that year or be compelled to winter somewhere on land. Nearer and nearer we came to it along the edge of the perpendicular wall of ice. At last we reached the headland, and our hearts bounded with joy to see so much water, only water, westwards, and the coast trending south-west. We also saw a bare mountain projecting from the ice-sheet a little way farther on; it was a curious high ridge, as sharp as a knife-blade. It was as steep and sharp as anything I have seen, it was all of dark, columnar basalt, and so jagged and peaked that it looked like a comb. In the middle of the

* It proved later to be Crown-Prince Rudolf's Land.

mountain there was a gap or couloir, and there we crept up to inspect the sea-way southwards. The wall of



A PADDLE ALONG THE EDGE OF THE ICE.

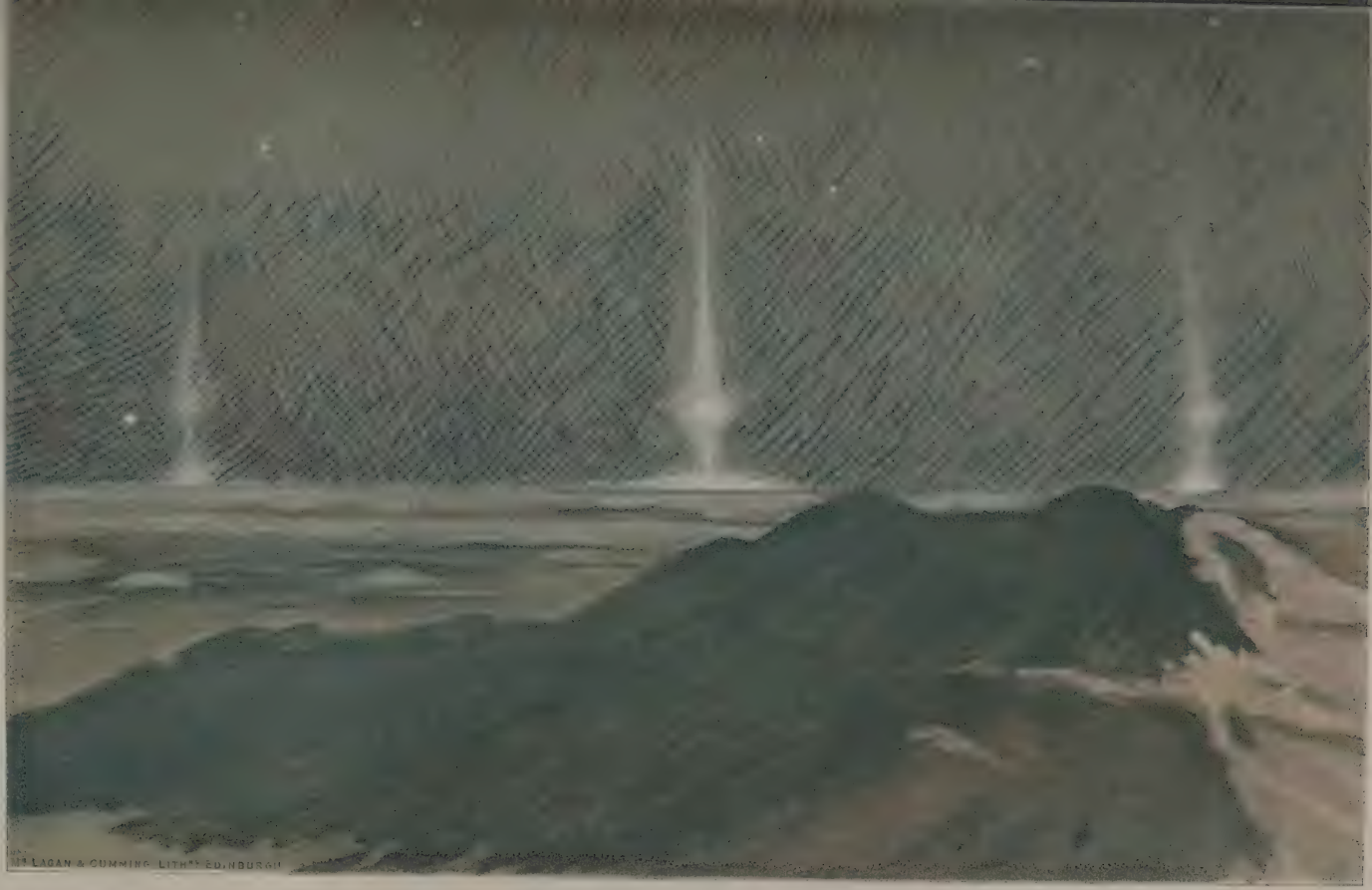
rock was anything but broad there, and fell away on the south side in a perpendicular drop of several hundred

feet. A cutting wind was blowing in the couloir. While we were lying there, I suddenly heard a noise behind me, and on looking round I saw two foxes fighting over a little auk which they had just caught. They clawed and tugged and bit as hard as they could on the very edge of the chasm ; then they suddenly caught sight of us, not twenty feet away from them. They stopped fighting, looked up wonderingly, and began to run round and peep at us, first from one side, then from the other. Over us myriads of little auks flew backwards and forwards, screaming shrilly from the ledges in the mountain-side. So far as we could make out, there appeared to be open sea along the land to the westward. The wind was favourable, and, although we were tired, we decided to take advantage of the opportunity, have something to eat, rig up mast and sail on our canoes, and get afloat. We sailed till the morning, when the wind went down, and then we landed on the shore-ice again and camped.*

"I am as happy as a child in the thought that we are now at last really on the west coast of Franz Josef Land, with open water before us, and independent of ice and currents."

"Wednesday, August 24th. The vicissitudes of this life will never come to an end. When I wrote last I was full of hope and courage ; and here we are stopped by stress of weather for four days and three nights, with the

* Off Brögger's Foreland.



MOONLIGHT PHENOMENA AT THE BEGINNING OF THE POLAR NIGHT, November 1893.

A vertical axis passes through the moon, with a strongly-marked luminous patch where it intersects the horizon. A suggestion of a horizontal axis on each side of the moon: portions of the moon-ring with mock moons visible on either hand.

ice packed as tight as it can be against the coast. We see nothing but piled-up ridges, hummocks, and broken ice in all directions. Courage is still here, but hope, the hope of soon being home—that was relinquished a long time ago, and before us lies the certainty of a long, dark winter in these surroundings.

"It was at midnight between the 17th and 18th that we set off from our last camping-ground in splendid weather. Though it was cloudy and the sun invisible, there was along the horizon in the north the most glorious ruddy glow with golden sun-tipped clouds, and the sea lay shining and dreamy in the distance: a marvellous night. . . . . On the surface of the sea, smooth as a mirror, without a block of ice as far as the eye could reach, glided the kayaks, the water purling off the paddles at every silent stroke. It was like being in a gondola on the Canale Grande. But there was something almost uncanny about all this stillness, and the barometer had gone down rapidly. Meanwhile, we sped towards the headland in the south-south-west, which I thought was about 12 miles off.* After some hours we espied ice ahead, but both of us thought that it was only a loose chain of pieces drifting with the current, and we paddled confidently on. But as we gradually drew nearer we saw that the ice was fairly compact, and extended a greater and greater distance; though from the low kayaks it

* Clements Markham's Foreland.

was not easy to see the exact extent of the pack. We accordingly disembarked and climbed up on a hummock to find out our best route. The sight which met us was anything but encouraging. Off the headland we were steering for, were a number of islets and rocks, extending some distance out to sea; it was they that were locking the ice, which lay in every direction, between them and outside them. Near us it was slack, but farther off it looked much worse, so that further advance by sea was altogether out of the question. Our only expedient was to take to the edge of the shore-ice, and hope for the chance that a lane might run along it some way farther on. On the way in, we passed a seal lying on a floe, and as our larder was beginning to grow empty, I tried to get a shot at it, but it dived into the water before we came within range.

"As we were paddling along through some small bits of ice my kayak suddenly received a violent shock from underneath. I looked round in amazement as I had not noticed any large piece of ice hereabouts. There was nothing of the kind to be seen either, but worse enemies were about. No sooner had I glanced down than I saw a huge walrus cleaving through the water astern, and it suddenly came up, raised itself and stood on end just before Johansen, who was following in my wake. Afraid lest the animal should have its tusks through the deck of his craft the next minute, he backed as hard as he could and felt for his gun, which he had down

in the kayak. I was not long either in pulling my gun out of its cover. The animal crashed snorting into the water again, however, dived under Johansen's kayak, and came up just behind him. Johansen, thinking he had had enough of such a neighbour, scrambled incontinently on to the floe nearest him. After having waited a while, with my gun ready for the walrus to come up close by me, I followed his example. I very nearly came in for the cold bath which the walrus had omitted to give me, for the edge of the ice gave way just as I set my foot on it, and the kayak drifted off with me standing upright in it, and trying to balance it as best I could, in order not to capsize. If the walrus had reappeared at that moment, I should certainly have received it in its own element. Finally, I succeeded in getting up on to the ice, and for a long time afterwards the walrus swam round and round our floe, where we made the best of the situation by having dinner. Sometimes it was near Johansen's kayak, sometimes near mine. We could see how it darted about in the water under the kayaks, and it had evidently the greatest desire to attack us again. We thought of giving it a ball to get rid of it, but had no great wish to part with a cartridge, and besides it only showed us its nose and forehead, which are not exactly the most vital spots to aim at when one's object is to kill with one shot. It was a great ox-walrus. There is something remarkably fantastic and pre-historic about these monsters. I could

not help thinking of a merman, or something of the kind, as it lay there just under the surface of the water blowing and snorting for quite a long while at a time, and glaring at us with its round glassy eyes. After having continued in this way for some time, it disappeared just as tracklessly as it had come ; and as we had finished our dinner, we were able to go on our way again, glad, a second time, not to have been upset, or destroyed by its tusks. The most curious thing about it was, that it came so entirely without warning--suddenly rising up from the deep. Johansen had certainly heard a great splash behind him some time before, which he took to be a seal, but perhaps it may have been the walrus.

"The lane along the shore-ice gave us little satisfaction, as it was completely covered with young ice and we could make no way. In addition to this a wind from the S.S.W. sprang up, which drove the ice on to us, so there was nothing for it but to put in to the edge of the ice and wait until it should slacken again. We spread out the bag, folded the tent over us, and prepared for rest in the hope of soon being able to go on. But this was not to be, the wind freshened, the ice packed tighter and tighter, there was soon no open water to be seen in any direction and even the open sea, whence we had come, disappeared ; all our hopes of getting home that year sank at one blow. After a while we realised that there was nothing to be done but to drag our loads further in on to the shore-ice and camp. To try and haul

the canoes farther over this pack, which was worse than any ice we had come across since we began our voyage, we thought was useless. We should get very little distance in the day, and it might cost us dear with the kayaks on the short sledges, among all these ridges and hummocks; and so we lay there day and night waiting for the wind to go down or to change. But it blew from the same quarter the whole time, and matters were not improved by a heavy fall of snow which made the ice absolutely impracticable.

"Our situation was not an attractive one; in front of us massive broken sea-ice, close by land, and the gods alone know if it will open again this year; a good way behind us land* which looked anything but inviting to spend the winter on; around us impassable ice, and our provender very much on the decline. The south coast of the country and Eira Harbour now appeared to our imagination a veritable land of Canaan, and we thought that if only we were there all our troubles would be over. We hoped to be able to find Leigh-Smith's hut there, or at any rate some remains of it, so that we should have something to live in, and we also hoped that where there no doubt was much open water it would be easy to find game. We regretted not having shot some seals while they were numerous; on the night when we left our last

* Helland's Foreland.

camping-place there were plenty of them about. As Johansen was standing on the edge of the ice doing something to his kayak, a seal came up just in front of him ; he thought it was of a kind he had not seen before, and shouted to me. But at the same moment up came one black poll after another quiet and silent, from ten to twenty in number, all gazing at him with their great eyes. He was quite nonplussed, thought there was something uncanny about it, and then they disappeared just as noiselessly as they had come.

"I consoled him by telling him they really were of a kind we had not seen before on our journey ; they were young harp, or saddleback seal (*Phoca groenlandica*). We saw several schools of them again later in the day.

"Meanwhile we killed time as best we could : chiefly by sleeping. On the early morning of the 21st, just as I lay thinking what would become of us if the ice should not slacken and we had no opportunity of adding to our larder—the chances I thought did not seem very promising—I heard something pawing and moving outside. It might as usual be the packing of the ice, but still I thought it was more like something on four legs. I jumped up, saying to Johansen that it must be a bear, and then I suddenly heard it sniffing by the tent-wall. I peeped out through some holes in one side of it and saw nothing ; then I went across to a big hole on the other side of the tent and there I saw an enormous bear just outside. It caught sight of me, too, at the same

moment and slunk away, but then stopped again and looked at the tent. I snatched my gun down from the tent-pole, stuck it through the hole and sent the bear a ball in the middle of the chest. It fell forward; but raised itself again and struggled off, so I had to give it the contents of the other barrel in the side. It still staggered on, but fell down between some hummocks a little way off. An unusually large he-bear, and for the time all our troubles for food were ended. The wind, however, continued steadily from the same quarter. As there was not much shelter where we were encamped, and furthermore, as we were uncomfortably near the ridge where the ice was continually packing, we removed and took up our abode farther in on the shore-ice, where we are still lying. Last night there was a bear about again, but not quite so near the tent.

"We went on an excursion inland* yesterday to see what our prospects might be if we should be forced to spend a winter here. I had hoped to find flatter ice farther in, but instead it grew worse and worse the nearer we went to land, and right in by the headland it was towering up, and almost impassable. The ice was piled against the very wall of the glacier. We went up on the glacier, and looked at the sound to the north of the headland. A little way in the ice appeared to be flatter, more like fjord-ice, but nowhere could we see lanes

* On Helland's Foreland.

where there might be a chance of capturing seal. There was no place for a hut either about here; while, on the other hand, we found on the south side of the headland quite a smiling spot where the ground was fairly level, and where there was some herbage and an abundance of moss and stones for building purposes. But outside it, again, the ice towered up on the shore in chaotic confusion on all sides. It was a little more level in the direction of the fjord or sound which ran far inland to the south, and there it soon turned to flat fjord-ice; but there were no lanes there either where we could hope to capture seal. There did not seem much prospect of game, but we comforted ourselves with the reflection that there were tracks of bears in every direction, and bears would, in case of necessity, be our one resource for both food and clothes. In the cliffs above us crowds of little auks had their nests, as on all such places that we have passed by. We also saw a fox. The rock-formation was a coarse-grained basalt; but by the side of the glacier we discovered a mound of loose, half-crumbled argillaceous schist, in which, however, we did not find any fossils. Some blocks which we thought very much like granite were also strewn about.* Everywhere along the beach the glaciers

* I took specimens of the different rock-formations, lichens, etc., that we came across; but in the course of the winter the collection was stolen by the foxes, and I thus brought little home from the tracts north of our winter hut.

were covered with red snow, which had a very beautiful effect in the sunshine.

"We were both agreed that it might be possible to winter here, but hoped it was the first and last time we should set foot on the spot. The way to it, too, was so bad that we hardly knew how we should get the sledges and kayaks there.

"To-day, at last, the change we have longed and waited for so long has come. Last night the south-west wind quieted down; the barometer, which I have been tapping daily in vain, has at last begun to rise a little, and the wind has gone round to the opposite quarter. The question now is whether, if it keep there, it will be able to drive the ice out again."

Here comes a great gap in my diary, and not till far on in the winter (Friday, December 6th) do I write:—"I must at last try and patch the hole in my diary. There has been so much to see about that I have got no writing done; that excuse, however, is no longer available, as we sleep nearly the whole twenty-four hours."

After having written my journal for the 24th August, I went out to look for a better and more sheltered place, as the wind had changed, and now blew straight into the tent. I hoped, too, that this land-wind might open up the ice, and I therefore first set off to see whether any sign of slackening was to be discovered at the edge of the shore ice; but the floes lay packed together as solidly as ever. I found, however, a capital place for pitching

the tent, and we were busy moving thither when we suddenly discovered that the ice had split off to the landward, and already there was a broad channel. We certainly wanted the ice to open up, but not on our landward side; and now it was a question of getting across on to the shore ice again at any price, so as not to drift out to sea with the pack. But the wind had risen to a stiff breeze, and it seemed more than doubtful whether we could manage to pull up against it, even for so short a distance as across the channel. This was rapidly growing broader and broader. We had, however, to make an attempt, and, therefore, set off along the edge towards a spot farther east, which we thought would give us a little more shelter for launching our kayaks. On arriving, however, we found that it would be no easy matter to launch them here either without getting them filled with water. It blew so that the spoondrift was driven over the sea, and the spray was dashed far in over the ice. There was little else to be done but to pitch our tent and wait for better times. We were now more than ever in need of shelter to keep the tent from being torn by the wind, but search and tramp up and down as we might we could find no permanent resting-place, and at last had to content ourselves with the scant shelter of a little elevation which we thought would do. We had not lain long before the gusts of wind made such onslaughts on the tent that we found it advisable to

take it down, to avoid having it torn to pieces. We could now sleep securely in our bags beneath the prostrate tent, and let the wind rage above us. After a time I awoke, and noticed that the wind had subsided so much that we could once more raise our tent, and I crept out to look at the weather. I was less pleasantly surprised on discovering that we were already far out to sea; we must have drifted eight or ten miles from land, and between it and us lay open sea. The land now lay quite low, far off on the horizon. In the meantime, however, the weather had considerably improved, and we once more set out along the edge of the ice to try to get our kayaks launched. But it was no easy matter. It was still blowing hard, and the sea ran high. In addition to this, there were a number of loose floes beyond, and these were in constant motion, so that we had to be on the alert to prevent the kayaks from being crushed between them. After some futile attempts we at length got afloat, but only to discover that the wind and the waves were too strong: we should scarcely be able to make any progress against them. Our only resource, therefore, was to sail if this were practicable. We went alongside an ice promontory, lashed the kayaks together, raised the mast, and again put to sea. We soon had our single sail hoisted, and to our unspeakable satisfaction we now found that we got along capitally. At last we should be able to bid farewell to the ice, where we had been compelled to abandon our

hope of reaching home that year. We now continued sailing hour after hour, and made good progress; but then the wind dropped too much for our single sail, and I ventured to set the whole double sail. Hardly had we done so, when the wind again sprang up, and we dashed foaming through the water. This soon, however, became a little too much; the sea washed over the lee kayak, the mast bent dangerously, and the situation did not look very pleasant; there was nothing for it but to lower the sail again as quickly as possible. The single sail was again hoisted, and we were cured for some time of wishing to try anything more.

We sailed steadily and well the whole day, and now at last had to pass the difficult cape; but it was evening before we left it behind, and now the wind dropped so much that the whole double sail had to be hoisted again, and even then progress was slow. We kept on, however, during the night, along the shore, determined to make as much use of the wind as possible. We passed a low promontory covered by a gently-sloping glacier;* around it lay a number of islands, which must, we thought, have held the ice fast. A little farther on

* As this promontory is probably the land Jackson saw farthest north in the spring of 1895, it has no name upon my map. It is otherwise with the islands outside, which he did not notice. They are only indicated approximately (as Geelmuyden Island and Alexander's Island), as I am not certain of either their number or their exact situation.

we came under some high basaltic cliffs, and here the wind dropped completely. As it was also hazy, and we could discern land and islands both to right and left of us, so that we did not know in what direction to steer, we put in here, drew the kayaks up on shore,

SAILING ALONG THE COAST.

pitched the tent, and cooked ourselves a good meal of warm food, which we relished greatly, from the consciousness of having done a good day's work. Above our heads, all up the face of the cliff, the little auks kept up

a continual hubbub, faithfully supported by the ivory gulls, kittiwakes, burgomasters, and skuas. We slept none the worse for that however. This was a beautiful mountain. It consisted of the finest columnar basalt one could wish to see, with its buttresses and niches up the face of the cliff, and its countless points and spires along every crest, reminding one of Milan Cathedral. From top to bottom it was only column upon column; at the base they were all lost in the talus.

When we turned out the following morning, the weather had so far cleared that we could better see the way we ought to take. It appeared as if a deep fjord, or sound ran in eastwards in front of us; and our way distinctly lay round a promontory which we had to the S.S.W. on the other side of the fjord. In that direction the water appeared to be open, while within the fjord lay solid ice, and out to sea drift-ice lay everywhere. Through the misty atmosphere we could also distinguish several islands.* Here, too, as we usually found in the morning, a great quantity of ice had drifted in in the course of the night—great, flat,

* These three islands, whose bearings we were subsequently enabled to take, and which we could see from our winter hut, are probably the land which Jackson saw and took to be "King Oscar Land." In consequence of his having seen them from only one point (his Cape Fisher), due south, in 81°, he has placed them 40′ too far north (in 82°), having over-estimated their distance. (See his map in the *Geographical Journal*, Vol. VII, No. 6, December, 1896, London.)

and thin floes which had settled themselves in front of us—and it looked as if we should have hard work to get out into open water. Things went a little better than we expected, however, and we got through before it closed in entirely. In front of us now lay open water right past the promontory far ahead; the weather was good, and everything seemed to promise a successful day. As it began to blow a little from the fjord, and we hoped it might become a sailing wind, we put in beside a little rocky island, which looked just like a great stone* sticking up out of the sea, and there rigged up mast and sail. But the sailing wind came to nothing, and we were soon obliged to unrig, and take to paddling. We had not paddled far, when the wind went round to the opposite quarter, the south-west. It increased rapidly and soon the sea ran high, the sky became overcast in the south, and it looked as if the weather might become stormy. We were still several miles from the land on the other side of the fjord, and we might have many hours of hard paddling before we gained it. This land, too, looked far from inviting, as it lay there, entirely covered with glacier from the summit right to the shore; only in one place did a little rock emerge. To leeward we had the margin of the shore-ice, low and affording no protection. The waves broke right upon it, and it would not be a good place to

* Called Steinen on the map.

seek refuge in, should such a proceeding become necessary; it would be best to get in under land and see how the weather would turn out. We did not like the prospect of once more being enclosed in the drift-ice; we had had enough of that by this time, so we made for some land which lay a little way behind us, and looked very inviting. Should matters turn out badly, a good place for wintering in might be found there.

Scarcely had I set foot on land, when I saw a bear a little way up the shore; and drew up our kayaks to go and shoot it. In the meantime it came shambling along the shore towards us, so we lay down quietly behind the kayaks and waited. When close up to us it caught sight of our footprints in the snow, and while it was snuffing at them Johansen sent a bullet behind its shoulder. The bear roared and tried to run, but the bullet had gone through the spine, and the hind part of its body was paralysed and refused to perform its functions. In perplexity the bear sat down, and bit and tore its hind paws until the blood flowed; it was as if it were chastising them to make them do their duty. Then it tried again to move away, but with the same result; the hind part of its body was no longer amenable to discipline, and dragged behind, so that it could only shuffle along on its fore-legs, going round in a ring. A ball through the skull put an end to its sufferings.

When we had skinned it, we made an excursion

inland to inspect our new domain, and were now not a little surprised to see two walruses lying quietly on the ice close to the spot where I had first caught sight of the bear. This seemed to me to show how little heed walruses pay to bears, who will never attack them if they can help it. I had more decisive proofs of this subsequently. In the sea beyond we also saw a walrus, which kept putting up its head and breathing so hard that it could be heard a long way off. A little later, I saw him approach the edge of the ice and disappear, only to appear again in the tidal channel close to the shore, a good way from the edge of the ice. He struck his great tusks into the edge of the ice, while he lay breathing hard, just like an exhausted swimmer. Then he raised himself high up on his tusks, and looked across the ice towards the others lying there, and then dived down again. He soon reappeared with a great deal of noise farther in, and the same performance was gone through again. A walrus's head is not a beautiful object as it appears above the ice. With its huge tusks, its coarse whisker bristles, and clumsy shape, there is something wild and goblin-like about it which, I can easily understand, might inspire fear in more superstitious times, and give rise to the idea of fabulous monsters, with which in ancient days these seas were thought to swarm. At last the walrus came up in the hole beside which the others were lying, and raised himself a little way up on to the edge of the ice by his tusks; but upon this the bigger of the two,

a huge old bull, suddenly awoke to life. He grunted menacingly, and moved about restlessly. The new-comer bowed his head respectfully down to the ice, but soon pulled himself cautiously up on to the floe, so as to get a hold with his fore-paddle, and then drew himself a little way in. Now the old bull was thoroughly roused. He turned round, bellowed, and floundered up to the new-comer in order to dig his enormous tusks into his back. The latter, who appeared to be the old bull's equal both as regards tusks and size, bowed humbly, and laid his head down upon the ice just like a slave before his sultan. The old bull returned to his companion, and lay quietly down as before, but no sooner did the new-comer stir, after having lain for some time in this servile posture, than the old bull grunted and thrust at him, and he once more respectfully drew back. This was repeated several times. At length, after much manœuvring backwards and forwards, the new-comer succeeded in drawing himself on to the floe, and finally up beside the others. I thought the tender passion must have something to do with these proceedings ; but I discovered afterwards that all three were males. And it is in this friendly manner that walruses receive their guests. It appears to be a specially chosen member of the flock that has these hospitable duties to perform. I am inclined to think it is the leader, who is asserting his dignity, and wishes to impress upon every new-comer that he is to be obeyed. These animals must

WALRUSES.

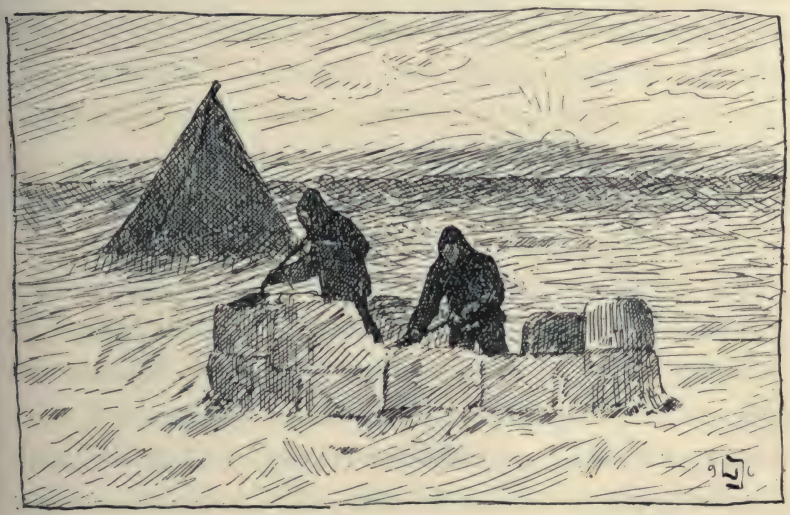
be exceedingly sociable, when, in spite of such treatment, they thus constantly seek one another's society, and always lie close together. When we returned a little later to look at them, another had arrived, and by the following morning six lay there side by side. It is not easy to believe that these lumps lying on the ice are living animals. With head drawn in and hind-legs flat beneath the body, they will lie motionless hour after hour, looking like enormous sausages. It is easy to see that these fellows lie there in security, and fearful of nothing in the world.

After having seen as much as we wanted of the walruses at close quarters, we went back, prepared a good meal from the newly slaughtered bear, and lay down to sleep. On the shore below the tent, the ivory gulls were making a fearful hubbub. They had gathered in scores from all quarters, and could not agree as to the fair division of the bear's entrails ; they fought incessantly, filling the air with their angry cries. It is one of nature's unaccountable freaks to have made this bird so pretty, while giving it such an ugly voice. At a little distance the burgomasters sat solemnly looking on and uttering their somewhat more melodious notes. Out in the sea the walruses were blowing and bellowing incessantly, but everything passed unheeded by the two weary warriors in the tent ; they slept soundly, with the bare ground for their couch. In the middle of the night we were awakened, however, by a peculiar sound ;

it was just like some one whimpering and crying, and making great ado. I started up, and looked out of the peep-hole. Two bears were standing down beside our bear's flesh, a she-bear and her young one, and both sniffing at the bloody marks in the snow, while the she-bear wailed as if mourning for a dear departed one. I lost no time in seizing my gun, and was just putting it cautiously out, when the she-bear caught sight of me at the peep-hole, and off they both set, the mother in front, and the young one trotting after as fast as it could. I just let them run—we had really no use for them—and then we turned over and went to sleep again.

Nothing came of the storm we had feared. The wind blew hard enough, however, to rend and tear our now well-worn tent, and there was no shelter where we lay. We hoped to go on on the following day, but found, to our disappointment, that the way was blocked; the wind had again driven the ice in. We must remain for the present where we were; but in that case we would make ourselves as comfortable as possible. The first thing to be done was to seek for a warm, well-sheltered place for the tent, but this was not to be found. There was nothing for it but to get something built up of stone. We quarried stone in the *débris* at the bottom of the cliff, and got together as much as we could. The only quarrying implement we had was a runner that had been cut off a hand-sledge; but

our two hands were what we had to use most. We worked away during the night; what we had at first only intended to be a shelter from the wind grew little by little into four walls; and we now kept at it until we had finished a small hut. It was nothing very wonderful, Heaven knows, not long enough for a



WE BUILD OUR FIRST HUT.

man of my height to lie straight inside—I had to stick my feet out at the door—and just broad enough to admit of our lying side by side, and leave room for the cooking apparatus. It was worst, however, with regard to the height. There was room to lie down, but to sit up decently straight was an impossibility for me. The roof was made of our thin and fragile silk tent, spread over

snowshoes and bamboo rods. We closed the doorway with our coats, and the walls were so loosely put together that we could see daylight between the stones on all sides. We afterwards called it the den, and a dreadful den it was, too; but we were none the less proud of our handiwork. It would not blow down, at any rate, even though the wind did blow right through it. When we had got our bearskin in as a couch and lay warm and comfortable in our bag, while a good potful of meat bubbled over the train-oil lamp, we thought existence a pleasure; and the fact of there being so much smoke that our eyes became red and the tears streamed down our cheeks could not destroy our feeling of content.

As progress southwards was blocked also on the following day (August 28th), and as autumn was now drawing on, I at last resolved on remaining here for the winter. I thought that we still had more than 138 miles to travel in order to reach Eira Harbour or Leigh Smith's wintering-place;* it might take us a long time to get there, and then we were not sure of finding any hut; and when we did get there, it would be more than doubtful if, before the winter set in, there would be time to build a house, and also gather stores for the winter. It was

* I now thought I could safely conclude that we were on the west coast of Franz Josef Land, and were at this moment a little north of Leigh Smith's most north-westerly point, Cape Lofley, which should lie a little south of 81° N. lat., while our observation that day made us about 81° 19′ N. lat.

undoubtedly the safest plan to begin at once to prepare for wintering, while there was still plenty of game to be had; and this was a good spot to winter in. The first thing I should like to have done was to have shot the walruses that had been lying on the ice during the first day or two; but now, of course, they were gone. The sea, however, was swarming with them; they bellowed and blew night and day, and, in order to be ready for an encounter with them, we emptied our kayaks to make them more easy of manipulation in this somewhat dangerous chase. While thus engaged, Johansen caught sight of two bears—a she-bear and her cub—coming along the edge of the ice from the south. We lost no time in getting our guns and setting off towards them. By the time they reached the shore they were within range, and Johansen sent a bullet through the mother's chest. She roared, bit at the wound, staggered a few steps, and fell. The young one could not make out what was the matter with its mother, and ran round, snuffing at her. When we approached it went off a little way up the slope, but soon came back again and took up a position over its mother, as if to defend her against us. A charge of small shot put an end to its life.

This was a good beginning to our winter store. As I was returning to the hut to fetch the seal-knives, I heard cries in the air above me. There were actually two geese flying south! With what longing I looked after

them as they disappeared, only wishing that I could have followed them to the land towards which they were now wending their flight!

Next to food and fuel, the most important thing was to get a hut built. To build the walls of this was not difficult; there was plenty of stone and moss. The roof presented greater difficulty, and we had as yet no idea what to make it of. Fortunately, I found a sound drift-wood pine-log thrown up on to the shore not far from our den; this would make a capital ridge-piece for the roof of our future house. And if there was one, there might be others. One of our first acts, therefore, was to make an excursion up along the shore and search; but all we found was one short, rotten piece of wood, which was good for nothing, and some chips of another piece. I then began to think of using walrus-hides for the roof instead.

The following day (August 29th) we prepared to try our luck at walrus-hunting. We had no great desire to attack the animals in single kayaks, we had had enough of that, I thought, and the prospect of being upset or of having a tusk driven through the bottom of the kayak, or into one's thigh, was not altogether alluring. The kayaks were therefore lashed together, and, seated upon the ring, we put out towards a big bull, which lay and dived just outside. We were well equipped with guns and harpoons, and thought that it was all quite simple. Nor was it difficult to get within range,

and we emptied our barrels into the animal's head. It lay stunned for a moment, and we rowed towards it, but suddenly it began to splash and whirl round in the water, completely beside itself. I shouted out that we must back, but it was too late : the walrus got under the kayaks, and we received several blows underneath in the violence of its contortions, before it finally dived. It soon came up again, and now the sound of its breathing resounded on all sides, while blood streamed from its mouth and nostrils, and dyed the surrounding water. We lost no time in rowing up to it, and pouring a fresh volley into its head. Again it dived, and we cautiously drew back, to avoid receiving an attack from below. It soon appeared again, and we once more rowed up to it. These manœuvres were repeated, and each time it came to the surface it received at least one bullet in the head, and grew more and more exhausted ; but, as it always faced us, it was difficult to give it a mortal wound behind the ear. The blood, however, now flowed in streams. During one of these manœuvres, I was in the act of placing my gun hurriedly in its case on the deck, in order to row nearer, forgetting that it was cocked, when all at once it went off. I was rather alarmed, thinking the ball had gone through the bottom of the kayak, and I began feeling my legs. They were uninjured, however, and as I did not hear the water rushing in either, I was reassured. The ball had passed through the deck, and out through the side

a little above the water-line. We had now had enough of this sport, however; the walrus only lay gasping for breath, and just as we rowed towards it it turned its head a little, and received two bullets just behind the ear. It lay still, and we rowed up to throw our harpoon; but before we got near enough, it sank and disappeared. It was a melancholy ending to the affair; in all nine cartridges had been expended to no purpose, and we silently rowed to shore, not a little crestfallen. We tried no more walrus-hunting from kayaks that day; but we now saw that a walrus had come up on to the shore ice a little way off. Perhaps we were to receive compensation there for the one we had just lost. It was not long before another came up beside the first. After having taken an observation and given them time to compose themselves, we set off. Having bellowed and made a horrible noise out there for some time, they now lay asleep and unsuspecting, and we stole cautiously up to them, I in front and Johansen close at my heels. I first went up to the head of the nearer one, which was lying with its back to us. As it had drawn its head well down, and it was difficult to get a shot at a vulnerable spot, I passed behind it, and up to the head of the other one. The animals still lay motionless, asleep in the sun. The second was in a better position for a shot, and, when I saw Johansen standing ready at the head of the first, I fired at the back of the neck. The animal turned over a little, and lay there dead.

At the report the first started up, but at the same moment received Johansen's bullet. Half stunned, it turned its gigantic body round towards us; in a moment I had discharged the ball from my smooth-bore at it, but, like Johansen, I hit too far forward in the head. The blood streamed from its nostrils and mouth, and it breathed and coughed till the air vibrated. Supporting itself upon its enormous tusks, it now lay still, coughing blood like a consumptive person, and quite indifferent to us. In spite of its huge body and shapeless appearance, which called up to the imagination bogie, giant, and kraken, and other evil things, there was something so gently supplicating and helpless in its round eyes as it lay there, that its goblin exterior and one's own need were forgotten in pity for it. It almost seemed like murder. I put an end to its sufferings by a bullet behind the ear, but those eyes haunt me yet; it seemed as if in them lay the prayer for existence of the whole helpless walrus race. But it is lost; it has man as its pursuer. It cannot, however, be denied that we rejoiced at the thought of all the meat and blubber we had now brought down in one encounter; it made up for the cartridges expended upon the one that sank. But we had not got them on land yet, and it would be a long piece of work to get them skinned, and cut up, and brought home. The first thing we did was to go after sledges and knives. As there was a possibility, too, of the ice breaking off and being set adrift, I also thought it wise to take the

kayaks on the sledges at the same time, for it had begun to blow a little from the fjord. But for this fortunate precaution, it is not easy to say what would have become of us. While we were engaged in skinning, the wind rose rapidly, and soon became a storm. To landward of us was the narrow channel or lane beside which the walruses had been lying. I feared that the ice might open here, and we drift away. While we worked, I, therefore, kept an eye on it to see if it grew broader. It remained unchanged, and we went on skinning as fast as we could. When the first walrus was half skinned, I happened to look landwards across the ice, and discovered that it had broken off a good way from us, and that the part on which we stood had already been drifting for some time; there was black water between us and the shore-ice, and the wind was blowing so that the spray flew from the foaming waves. There was no time to be lost; it was more than doubtful whether we should be able to paddle any great distance against that wind and sea, but as yet the ice did not appear to have drifted a greater distance from the land than we could cross, if we made haste. We could not bring ourselves to give up entirely the huge animals we had brought down, and we hurriedly cut off as much flesh as we could get at, and flung it into the 'kayaks.' We then cut off about a quarter of the skin, with the blubber on it, and threw it on the top, and then set off for the shore. We had scarcely abandoned our booty before the gulls bore down

in scores upon the half-skinned carcase. Happy creatures! Wind and waves and drifting were nothing to them; they screamed and made a hubbub and thought what a feast they were having. As long as we could see the carcases as they drifted out to sea, we saw the birds continually gathering in larger and larger flocks about them like clouds of snow. In the meantime we were doing our utmost to gain the ice, but it had developed cracks and channels in every direction. We managed to get some distance in the kayaks; but while I was crossing a wide channel on some loose floes I alighted on such poor ice that it sank under my weight, and I had to jump back quickly to escape a bath. We tried in several places, but everywhere it sank beneath us and our sledges, and there was nothing for it but to take to the water, keeping along the lee-side of the ice. But we had not rowed far before we perceived that it was of no use to have our kayaks lashed together in such a wind; we had to row singly, and sacrifice the walrus-hide and blubber, which it then became impossible to take with us. At present it was lying across the stern of both kayaks. While we were busy effecting these changes we were surrounded, before we were aware of it, by ice, and had to pull the kayaks up hastily to save them from being crushed. We now tried to get out at several places, but the ice was in constant motion; it ground

round as in a whirlpool. If a channel opened, we had no sooner launched our kayaks than it once more closed violently, and we had to snatch them up in the greatest haste. Several times they were within a hair's-breadth of being smashed. Meanwhile the storm was steadily increasing, the spray dashed over us, and we drifted farther and farther out to sea. The situation was not pleasant.

At length, however, we got clear, and now discovered, to our joy, that by exerting our utmost strength we could just force the kayaks on against the wind. It was a hard pull, and our arms ached ; but still we crept slowly on towards land. The sea was choppy and bad, but our kayaks were good sea-boats, and even mine, with the bullet-hole in it, did so well that I kept to some extent dry. The wind came now and then in such gusts, that we felt as if it might lift us out of the water and upset us ; but gradually, as we drew nearer in under the high cliffs, it became quieter, and at last, after a long time, we reached the shore, and could take breath. We then rowed in smoother water along the shore up to our camping-place. It was with genuine satisfaction that we clambered on shore that night, and how unspeakably comfortable it was to be lying again snugly within four walls in our little den, wet though we were. A good potful of meat was prepared, and our appetite was ravenous. It was, indeed, with sorrow that we thought of the lost walruses now drifting

A FIGHT AGAINST THE STORM TO REACH LAND. 29 AUGUST, 1895

(By Otto Sinding.)

out there in the storm; but we were glad that we were not still in their company.

I had not slept long, when I was awakened by Johansen, who said there was a bear outside. Even when only half awake, I heard a strange, low grunting just outside the doorway. I started up, seized my gun, and crept out. A she-bear, with two large cubs was going up the shore; they had just passed close by our door. I aimed at the she-bear, but, in my haste, I missed her. She started and looked round; and as she turned her broad side to me I sent a bullet through her chest. She gave a fearful roar, and all three started off down the shore. There the mother dropped in a pool on the ice, but the young ones ran on, and rushed into the sea, dashing up the foam as they went, and began to swim out. I hastened down to the mother, who was striving and striving to get out of the pool, but in vain. To save ourselves the labour of dragging the heavy animal out, I waited until she had drawn herself up on to the edge, and then put an end to her existence. Meanwhile the young ones had reached a piece of ice. It was very close quarters for two, and only just large enough to hold them; but there they sat balancing and dipping up and down in the waves. Every now and then one of them fell off, but patiently clambered up again. They cried plaintively and incessantly, and kept looking towards land, unable to understand why their mother was so long in coming.

The wind was still high, and they drifted quickly out to sea before it with the current. We thought they would at last swim to land to look for their mother, and that we must wait; we, therefore, hid ourselves among the stones, so that they should not be afraid of coming on our account. We could still hear them complaining, but the sound became more and more distant, and they grew smaller and smaller out there on the blue waves, till at last it was all we could do to distinguish them as two white dots far out upon the dark plain. We had long been tired of this, and went to our kayaks. But here a sad sight met our eyes. All the walrus flesh which we had brought home with so much trouble lay scattered about on the shore, torn and mangled; and every bit of fat or blubber to be found on it had been devoured. The bears must have been rummaging finely here while we slept. One of the kayaks, in which the meat had been lying, was thrown half into the water, the other high up among the stones. The bears had been right into them, and dragged out the meat; but, fortunately, they were none the worse, so it was easy to forgive the bears, and we benefited by the exchange of bear's flesh for walrus flesh.

We then launched the kayaks, and put off to chase the young ones to land. As soon as ever they saw us on the water they became uneasy, and while we were still some way off one of them took to the water. The other hesitated for a while, as if afraid of the water, while the

first waited impatiently ; but at last they both went in. We made a wide circuit round them, and began to drive them towards the land, one of us on each side of them. It was easy to make them go in whatever direction we wanted, and Johansen could not say enough in praise of this simple method of getting bears from one place to another. We did not need to row hard to keep up with them ; we went slowly and easily, but surely, towards land. We saw several walruses in the vicinity, but fortunately escaped being attacked by any of them. From the very first it was evident how much better the bear that first went into the water swam, although it was the smallest and thinnest. It waited, however, patiently for the other, and kept it company ; but at last the pace of the latter became too slow for its companion, who struck out for the shore, the distance between the two growing greater and greater. They had kept incessantly turning their heads to look anxiously at us, and now the one that was left behind looked round even more helplessly than before. While I set off after the first bear, Johansen watched the second, and we drove them ashore by our den, and shot them there.

We had thus taken three bears on that day, and this was a good set-off against our walruses, which had drifted out to sea, and, what was no less fortunate, we found the sunken walrus from the day before floating just at the edge of the shore. We lost no time in

towing it into a place of safety in a creek and making it fast. It made a difference to our winter store.

It was late before we turned in that night after having skinned the bears, laid them in a heap, and covered them with the skins to prevent the gulls from getting at them. We slept well, for we had to make up for two nights.

It was not until September 2nd that we could set to work on the skinning of our walrus, which still lay in the water. Close to our den there was an opening in the strand-ice,* connecting the inner channel between the strand-ice and the land with the outer sea. It was in this opening that we had made it fast, and we hoped to be able to draw it on land here ; the glacier ice went with a gentle incline right out into the water, so that it seemed to promise well. We rounded off the edge of the ice, made a tackle by drawing the rope through a loop we cut in the skin of the head, used our broken-off runner of a sledge as a handspike at the end of the rope, and cut notches in the ice up the beach as a fulcrum for the handspike. But work and toil as we might it was all we could do to get the huge head up over the edge of the ice. In the midst of this Johansen cried: "I say, look there!" I turned. A large walrus was swimming straight up the

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* Ice which is frozen fast to the bottom, and is therefore often left lying like an icy base along the shore, even after the sea is free from ice. On account of the warm water which comes from the land, an open channel is often formed between this ice-base and the shore.

channel towards us. It did not seem to be in any hurry, but only opened wide its round eyes, and gazed in astonishment at us and at what we were doing. I suppose that, seeing a comrade, it had come in to see what we were doing with him. Quietly, slowly, and with dignity, it came right up to the edge where we stood. Fortunately we had our guns with us, and when I approached with mine it only rose up in the water, and gazed long and searchingly at me. I waited patiently until it turned a little, and then sent a bullet into the back of its head. It was stunned for a time, but soon began to move, so that more shots were required. While Johansen ran for cartridges and a harpoon, I had to fight with it as I best could, and try to prevent it, with a stick, from splashing out of the channel again. At last Johansen returned, and I did for this walrus. We were delighted over our good fortune, but what the walrus wanted in that narrow channel we have always wondered. These animals must be uncommonly curious. While we were skinning the bears two days before, a walrus with its young one came close in to the edge of the ice and gazed at us; it dived several times, but always returned, and, at last, drew the whole of the fore part of its body up on to the ice, in order to see better. This it did several times, and my approaching to within a few yards of it did not drive it away; it was only when I went up close to it with my gun that it

suddenly came to its senses, and threw itself backwards into the water again, and we could see it far below moving off with its young one by its side.

We now had two great walruses with enormous tusks, floating in our channel. We tried once more to drag one of them up, but the attempt was as unsuccessful as before. At last we saw that our only course was to skin them in the water, but this was neither an easy nor an agreeable task. When at last, late in the evening, we had got one side of one animal skinned, it was low water, the walrus lay on the bottom, and there was no possibility of turning it over, no matter how we toiled and pulled. We had to wait for high tide the following day, in order to get at the other side.

While we were busy with the walruses that day, we suddenly saw the whole fjord white with white whales, gambolling all round as far as the eye could see. There was an incredible number of them. In the course of an hour they had entirely disappeared. Where they came from and whither they went I was not able to discover.

During the succeeding days we toiled at our task of skinning and cutting up the walruses, and bringing all up into a safe place on the beach. It was disgusting work lying on the animals out in the water, and having to cut down as far as one could reach below the surface of the water. We could put up with getting wet, for one gets dry in time ; but what was worse was that we could not

avoid being saturated with blubber and oil and blood from head to foot, and our poor clothes that we should have to live in for another year before we could change, fared badly during those days. They so absorbed oil that it went right through to the skin. This walrus business was unquestionably the worst work of the whole expedition, and had it not been a sheer necessity, we should have let the animals lie where they were; but we needed fuel for the winter, even if we could have done without the meat. When at last the task was completed, and we had two great heaps of blubber and meat on shore, well covered by the thick walrus hides, we were not a little pleased.

During this time the gulls were living in luxury. There was abundance of refuse, blubber, entrails and other internal organs. They gathered in large flocks from all quarters, both ivory and glaucus gulls, and kept up a perpetual screaming and noise both night and day. When they had eaten as much as they could manage, they generally sat out on the ice-hummocks and chattered together. When we came down to skin, they withdrew only a very little way from the carcases, and sat waiting patiently in long rows on the ice beside us, or, led on by a few bold officers, drew continually nearer. No sooner did a little scrap of blubber fall, than two or three ivory gulls would pounce upon it, often at our very feet, and fight over it until the feathers flew. Outside the fulmars were sailing in

their silent, ghost-like flight to and fro over the surface of the water. Up and down the edge of the shore, flocks of kittiwakes moved incessantly, darting like an arrow, with a dull splash, towards the surface of the water, whenever a little crustacean appeared

"IN THE WATER LAY WALRUSES."

there. We were particularly fond of these birds, for they kept exclusively to the marine animals and left our blubber alone; and then they were so light and pretty. But up and down along the shore the skua (*Stercorarius crepidata*) chased incessantly, and every

now and again we were startled by a pitiful cry of distress above our heads; it was a kittiwake pursued by a skua. How often we followed with our eyes that wild chase up in the air, until at last the kittiwake had to drop its booty, and down shot the skua, catching it even before it touched the water! Happy creatures that can move with such freedom up there! Out in the water lay walruses, diving and bellowing, often whole herds of them; and high up in the air, to and fro, flew the little auks in swarms; you could hear the whirr of their wings far off. There were cries and life on all sides. But soon the sun will sink, the sea will close in, the birds will disappear one after another towards the south, the polar night will begin, and there will be profound, unbroken silence.

It was with pleasure that we, at last, on September 7th, set to work to build our hut. We had selected a good site in the neighbourhood, and from this time forward we might have been seen daily going out in the morning like other labourers, with a can of drinking-water in one hand and a gun in the other. We quarried stones up among the débris from the cliff, dragged them together, dug out the site, and built walls as well as we could. We had no tools worth mentioning; those we used most were our two hands. The cut-off sledge-runner again did duty as a pick, with which to loosen the fast-frozen stones, and when we could not manage to dig up the earth on our site with our

hands we used a snowshoe staff with an iron ferrule. We made a spade out of the shoulder-blade of a walrus tied to a piece of a broken snowshoe-staff, and a mattock out of a walrus tusk tied to the cross-tree of a sledge. They were poor things to work with, but we managed it with patience, and little by little there arose solid walls of stone with moss and earth between. The weather was growing gradually colder, and hindered us not a little in our work. The soil we had to dig in hardened, and the stones that had to be quarried froze fast; and there came snow too. But great was our surprise when we crept out of our den on the morning of the 12th of September to find the most delightful thaw, with 4° (C.) of heat (39·2° Fahr.). This was almost the highest temperature we had experienced throughout the expedition. On every side streams were tumbling in foaming falls down from mountain and glacier, humming along merrily among the stones down to the sea. Water trickled and tinkled everywhere; as if by a stroke of magic, life had returned to frozen nature, and the hill looked green all over. One could fancy oneself far south, and forget that a long, long winter was drawing near. The day after, everything was changed again. The gentle gods of the south, who yesterday had put forth their last energies, had once more fled; the cold had returned, snow had fallen and covered every trace: it would not yield again. This little strip of bare ground, too, was in the power of

the genii of the cold and darkness ; they held sway now, right down to the sea. I stood looking out over it. How desolate and forsaken this spell-bound Nature looked! My eye fell upon the ground at my feet. Down there among the stones, the poppy still reared its beautiful blossoms above the snow ; the last rays of the departing sun would once more kiss its yellow petals, and then it would creep beneath its covering to sleep through the long winter, and awake again to new life in the spring. Ah, to be able to do the same!

After a week's work, the walls of our hut were finished. They were not high, scarcely 3 feet above the ground ; but we had dug down the same distance into the ground, so we reckoned that it would be high enough to stand up in. Now the thing was to get it roofed, but this was not so easy. The only materials we had towards it were, as before mentioned, the log we had found, and the walrus-hides. The log, which was quite 12 inches across, Johansen at last, after a day's work, succeeded in cutting in two with our little axe, and with no less labour, we rolled it up over the talus, and on to the level, and it was laid on the roof as the ridge-piece. Then there were the hides ; but they were stiff and frozen fast to the meat and blubber heaps which they covered. With much difficulty we at length loosened them by using wedges of walrus tusks, stone, and wood. To transport these great skins over the long distance to our hut was a no less difficult matter.

However, by rolling them, carrying them, and dragging them we accomplished this too; but to get the frozen skins stretched over the hut was the worst of all. We got on pretty well with three half-skins, just managing to bend them a little; but the fourth half was frozen quite stiff, and we had to find a hole in the ice, and sink it in the sea, to thaw it.

It was almost a cause for anxiety, I thought, that all this time we saw nothing of any bears. They were what we had to live upon all through the winter, and the six we had would not go far. I thought, however, that it might easily be accounted for, as the fjord-ice, to which the bear prefers to keep, had taken its departure on the day when we had nearly drifted out to sea with the walruses, and I thought that, when the ice now formed again, bears would appear once more. It was, therefore, a relief when one morning (September 23rd) I caught sight of a bear in front of me, just as I came round the promontory to look at the skin that we had in soak in the sea. It was standing on the shore close by the skin. It had not seen me, and I quickly drew back to let Johansen, who was following with his gun, pass me, while I ran back to fetch mine. When I returned, Johansen lay on the same spot behind a stone, and had not fired. There were two bears, one by the hut and one by the shore; and Johansen could not get up to the one without being seen by the other. When I had gone after my gun, the bear had turned its steps towards the hut; but just as

it reached it, Johansen suddenly saw two bear's paws come quickly over the edge of the wall, and hit out at the first bear, and a head followed immediately after. This fellow was busy gnawing at our roof-hides, which he had torn down and bent, so that we had to put them into the sea too, to get them thawed. The first bear had to retreat to the shore once more, where we afterwards discovered it had drawn up our hide, and had been scraping the fat off it. Under cover of some hummocks we now ran towards it. It noticed us, and set off running, and I was only able to send a bullet through its body from behind. Shouting out to Johansen that he must look after the other bear, I set off running, and, after a couple of hours' pursuit up the fjord, I at last chased it up under the wall of a glacier, where it prepared to defend itself. I went right up to it, but it growled and hissed, and made one or two attacks on me from the elevation on which it stood, before I finally put an end to its existence. When I got back Johansen was busy skinning the other bear. It had been alarmed by us when we attacked the first, and had gone a long way out over the ice; it had then returned to look for its companion, and Johansen had shot it. Our winter store was increasing.

The next day (September 24th), as we were setting out to work at our hut, we saw a large herd of walruses lying out on the ice. We had both had more than enough of these animals, and had very little inclination

for them. Johansen was of candid opinion that we had no need for them, and could let them lie in peace, but I thought it was rather improvident to have food and fuel lying at one's very door, and make no use of them, so we set off with our guns. To steal up to the animals, under cover of some elevations on the ice, was a matter of small difficulty, and we had soon come within 40 feet of them, and could lie there quietly and watch them. The point was to choose one's victim, and make good use of one's shot, so as not to waste cartridges. There were both old and young animals, and, having had more than enough of big ones, we decided to try for the two smallest that we could see; we thought we had no need of more than two. As we lay waiting for them to turn their heads, and give us the chance of a good shot, we had plenty of opportunity to watch them. They are strange animals. They lay incessantly poking one another in the back with their huge tusks, both the big old ones and the little young ones. If one of them turned over a little, so as to come near and disturb his neighbour, the latter immediately raised itself grunting and dug its tusks into the back of the first. It was by no means a gentle caress, and it is well for them that they have such a thick hide; but, as it was, the blood ran down the backs of several of them. The other would, perhaps, start up too, and return the little attention in the same manner. But it was when another guest came up from the sea that there was a stir

in the camp; they all grunted in chorus, and one of the old bulls that lay nearest to the new arrival, gave him some well-meant blows. The newcomer, however, drew himself cautiously up, bowed respectfully, and little by little drew himself in among the others, who also then gave him as many blows as time and circumstances would permit, until they finally composed themselves again, and lay quiet until another interruption came. We waited in vain for the animals we had picked out to turn their heads enough to let us get a good shot; but as they were comparatively small, we thought that a bullet in the middle of the forehead might be enough for them, and at last we fired. They started up, however, and turned over half-stunned into the water. Then there was a commotion! The whole herd quickly raised their ugly heads, glared at us, and one by one plunged out over the edge of the ice. We had hastily loaded again, and as it was not difficult now to get a good shot, we fired, and there lay two animals, one young and one old. Most of the others dived, only one remaining quietly, lying and looking wonderingly, now at its two dead companions, and now at us as we came up to it. We did not quite know what to do; we thought that the two that were now lying there would give us more than enough to do, but nevertheless it was tempting to take this great monster as well, while we were about it. While Johansen was standing with his gun, considering whether

he should fire or not, I took the opportunity of photographing both him and the walrus. It ended, however, in our letting it go unharmed; we did not think we could afford to sacrifice more cartridges upon it. Meantime the water beyond was seething with furious animals,

"I PHOTOGRAPHED HIM AND THE WALRUS."

as they broke up the ice round about and filled the air with their roaring. The big bull himself seemed especially anxious to get at us; he kept returning to the edge of the ice, getting half up on to it to grunt and bellow at us, and look long at his dead comrades, whom he

evidently wished to take with him. But we would not waste more cartridges upon them, and he threw himself back, only to return again immediately. Gradually the whole herd departed, and we could hear the big bull's grunting becoming more and more distant; but suddenly his huge head appeared again at the edge of the ice, close to us, as he challenged us with a roar, and then disappeared again as quickly as he had come. This was repeated three or four times, after our having, in the intervals, heard him far out; but at last he disappeared entirely, and we continued our work of skinning in peace. We very quickly skinned the smaller of the walruses; it was easy to manipulate compared to those we were accustomed to. The other, however, was a great fellow that could not be easily turned over in the hollow in the snow where he lay; so we contented ourselves with skinning one side from head to tail, and then went home again with our blubber and skins. We now thought we should have blubber enough for winter fuel, and had also abundance of skins for covering the roof of our hut.

The walruses still kept near us for some time. Every now and then we would hear some violent blows on the ice from beneath, two or three in succession, and then a great head would burst up with a crash through the ice. It would remain there for a time panting and puffing so that it would be heard a long way off, and then vanish again. On September 25th, while we

were pulling our roof-hides out of the water, at a hole near the shore, we heard the same crashing in the ice a little farther out, and a walrus came up and then dived again. "Look there! It won't be long before

"IT GAZED WICKEDLY AT US."

we have him in this hole." The words were scarcely spoken, when our hide in the water was pushed aside and a huge head, with bristles and two long tusks, popped up in front of us. It gazed fixedly and wickedly

at us standing there, then there was a tremendous splash and it was gone.

Our hides were now so far softened in the sea, that we could stretch them over the roof. They were so long that they reached from one side of the hut right over the ridge-piece down to the other side, and we stretched them by hanging large stones at both ends, attached by strips of hide, thus weighing them down over the edges of the wall, and we then piled stones upon them. By the aid of stones, moss, strips of hide, and snow to cover everything, we made the edges of the walls to some extent close-fitting. To make the hut habitable, we still had to construct benches of stone to lie upon inside it, and also a door. This consisted of an opening in one corner of the wall, which led into a short passage, dug out in the ground, and subsequently roofed over with blocks of ice on very much the same principle as the passage to an Eskimo's house. We had not dug this passage so long as we wished, before the ground was frozen too hard for our implements. It was so low that we had to creep through it in a squatting posture to get into the hut. The inner opening was covered with a bear-skin curtain, sewn firmly to the walrus-hide of the roof; the outer end was covered with a loose bear-skin laid over the opening. It began to grow cold now, as low as — 20° C. (4° below zero Fahr.), and living in our low den, where we had not room to move, became more and more intolerable; the smoke, too, from the oil-lamp when we

did any cooking, always affected our eyes. We grew daily more impatient to move into our new house, which now appeared to us the acme of comfort. Our ever-recurring remark while we were building was, how nice and snug it would be when we got in, and we depicted to one another the many pleasant hours we should spend there. We were, of course, anxious to discover all the bright points that we could in our existence. The hut was certainly not large; it was 10 feet long and 6 feet wide, and when you lay across it, you kicked the wall on one side, and butted it on the other. You could move in it a little, however, and even I could almost stand upright under the roof. This was a thought which especially appealed to us. Fancy having a place sheltered from the wind where you could stretch your limbs a little! We had not had that since last March on board the *Fram*. It was long, however, before everything was in order, and we would not move in until it was quite finished.

The day we had skinned our last walruses, I had taken several tendons from their backs, thinking they might be very useful when we made ourselves clothes for the winter, for we were entirely without thread for that purpose. Not until a few days afterwards (September 26th) did I recollect that these tendons had been left on the ice beside the carcases. I went out there to look for them, but found to my sorrow that gulls and foxes had long since made away with them. It was some comfort,

however, to fined traces of a bear, which must have been at the carcases during the night, and as I looked about I caught sight of Johansen running after me, making signs, and pointing out towards the sea. I turned that way and there was a large bear, walking to and fro, and looking at us. We had soon fetched our guns, and, while Johansen remained near the land to receive the bear if it came that way, I made a wide circuit round it on the ice to drive it landwards, if it should prove to be frightened. In the meantime, it had lain down out there beside some holes, I suppose to watch for seals. I stole up to it; it saw me and at first came nearer, but then thought better of it, and moved away again, slowly and majestically, out over the new ice. I had no great desire to follow it in that direction, and, though the range was long, I thought I must try it. First one shot: it passed over. Then one more: that hit. The bear started, made several leaps, and then in anger struck the ice until it broke, and the bear fell through. There it lay splashing and splashing, and breaking the thin ice with its weight as it tried to get out again. I was soon beside it, but did not want to sacrifice another cartridge; I had faint hopes, too, that it would manage to get out of the water by itself, and thus save us the trouble of dragging such a heavy animal out. I called to Johansen to come with a rope, sledges, and knives, and in the meantime I walked up and down waiting and watching. The bear laboured hard, and

made the opening in the ice larger and larger. It was wounded in one of its fore-legs, so that it could use only the other, and the two hind-legs. It kept on taking hold and pulling itself up. But no sooner had it got half up than the ice gave way, and it sank down again. By degrees its movements became more and more feeble, till at last it only lay still and panted. Then came a few spasms, its legs stiffened, its head sank down into the water, and all was still. While I was walking up and down I several times heard walruses round about, as they butted holes in the ice, and put their heads through ; and I was thinking to myself that I should soon have them here too. At that moment the bear received a violent blow from beneath, pushing it to one side, and up came a huge head with great tusks ; it snorted, looked contemptuously at the bear, then gazed for a while wonderingly at me, as I stood on the ice, and finally disappeared again. This had the effect of making me think the old solid ice, a little farther in, a pleasanter place of sojourn than the new ice. My suspicion that the walrus entertains no fear for the bear was more than ever strengthened. At last Johansen came with a rope. We slipped a running noose round the bear's neck, and tried to haul it out, but soon discovered that this was beyond our power ; all we did was to break the ice under the animal, wherever we tried. It seemed hard to have to give it up ; it was a big bear and seemed to be unusually fat ;

but to continue in this way until we had towed up to the edge of the thick ice would be a lengthy proceeding. By cutting quite a narrow crack in the new ice, only wide enough to draw the rope through, up to the edge of a large piece of ice which was quite near, we got pretty well out of the difficulty. It was now an easy matter to draw the bear thither under the ice, and after breaking a sufficiently large hole, we drew it out there. At last we had got it skinned and cut up, and, heavily laden with our booty, we turned our steps homewards, late in the evening, to our den. As we approached the beach where our kayaks were lying upon one of our heaps of walrus-blubber and meat, Johansen suddenly whispered to me: "I say, look there!" I looked up, and there stood three bears on the heaps, tearing at the blubber. They were a she-bear and two young ones. "Oh dear!" said I; "shall we have to set to at bears again." I was tired, and, to tell the truth, had far more desire for our sleeping-bag and a good potful of meat. In a trice we had got our guns out, and were approaching cautiously; but they had caught sight of us, and set off over the ice. It was with an undeniable feeling of gratitude that we watched their retreating forms. A little later, while I was standing cutting up the meat, and Johansen had gone to fetch water, I heard him whistle. I looked up, and he pointed out over the ice. There in the dusk were the three bears coming back: our blubber-heap had been too tempting for them. I

crept with my gun behind some stones close to the heap. The bears came straight on, looking neither to right nor left, and as they passed me I took as good an aim at the she-bear as the darkness would allow, and fired. She roared, bit her side, and all three set off out over the ice. There the mother fell, and the young ones stood astonished and troubled beside her until we approached, when they fled, and it was impossible to get within range of them. They kept at a respectful distance, and watched us while we dragged the dead bear to land, and skinned it. When we went out next morning, they were standing sniffing at the skin and meat; but before we could get within range they saw us, and were off again. We now saw that they had been there all night, and had eaten up their own mother's stomach, which had contained some pieces of blubber. In the afternoon they returned once more; and again we attempted, but in vain, to get a shot at them. Next morning (Saturday, September 28th), when we crawled out, we caught sight of a large bear lying asleep on our blubber-heap. Johansen crept up close to it, under cover of some stones. The bear heard something moving, raised its head, and looked round. At the same instant Johansen fired, and the bullet went right through the bear's throat, just below the cranium. It got slowly up, looked contemptuously at Johansen, considered a little, and then walked quietly away with long measured steps as if nothing had happened. It soon had a couple of

bullets from each of us in its body, and fell out on the thin ice. It was so full of food that, as it lay there, blubber and oil and water ran out of its mouth on to the ice, which began gradually to sink under its weight, until it lay in a large pool, and we hastily dragged it in to the shore, before the ice gave way beneath it. It was one of the largest bears I have ever seen, but also one of the leanest; for there was not a trace of fat upon it, neither underneath the skin, nor among the entrails. It must have been fasting for a long time, and been uncommonly hungry; for it had consumed an incredible quantity of our blubber. And how it had pulled it about! First it had thrown one kayak off, then it had scattered the blubber about in all directions, scraping off the best of the fat upon almost every single piece, then it had gathered the blubber together again in another place, and then, happy with the happiness of satiety, had lain down to sleep upon it, perhaps so as to have it handy when it woke up again. Previous to attacking the blubber-heap it had accomplished another piece of work, which we only discovered later on. It had killed both the young bears that had been visiting us; we found them not far off, with broken skulls, and frozen stiff. We could see by the foot-prints how it had run after them out over the new ice, first one and then the other, and had dragged them on land, and laid them down without touching them again. What pleasure it can have had in doing this, I do not under-

stand, but it must have regarded them as competitors in the struggle for food. Or was it, perhaps, a cross old gentleman, who did not like young people? "It is so nice and quiet here now," said the ogre, when he had cleared the country.

Our winter store now began quite to inspire confidence.

At length, on the evening of that day, we moved into our new hut; but our first night there was a cold one. Hitherto we had slept in one bag all the time, and even the one we had made by sewing together our two blankets had been fairly adequate. But now we thought it would not be necessary to sleep in one bag any longer, as we should make the hut so warm by burning train-oil lamps in it, that we could very well lie each in our own berth with a blanket over us, and so we had unpicked the bag. Lamps were made by turning up the corners of some sheets of German silver, filling them with crushed blubber, and laying in this, by way of a wick, some pieces of stuff from the bandages in the medicine-bag. They burned capitally, and gave such a good light, too, that we thought it looked very snug; but it neither was nor ever would be sufficient to warm our still rather permeable hut, and we lay and shivered with cold all night. We almost thought it was the coldest night we had had. Breakfast next morning tasted excellent, and the quantity of bear-broth we consumed in order to put a little warmth into our bodies is incredible.

AT OUR WINTER QUARTERS.

We at once decided to alter this by making along the back wall of the hut a sleeping-shelf broad enough for us to lie beside one another. The blankets were sewn together again, we spread bear-skins under us, and were as comfortable as we could be under the circumstances; and we made no further attempt to part company at night. It was impossible to make the substratum at all even, with the rough, angular stones which, now that everything was frozen, were all we had at our disposal, and therefore we lay tossing and twisting the whole winter to find something like a comfortable place among all the knobs. But it was hard, and remained so, and we always had some tender spots on our body, and even sores on our hips with lying. But for all that we slept. In one corner of the hut we made a little hearth to boil and roast upon. In the roof above we cut a round hole in the walrus-hide, and made a smoke-board up to it of bear-skin. We had not used this hearth long before we saw the necessity of building a chimney to prevent the wind from beating down, and so filling the hut with smoke, as to make it sometimes intolerable. The only materials we had for building this were ice and snow; but with these we erected a grand chimney on the roof, which served its purpose, and made a good draught. It was not quite permanent, however; the hole in it constantly widened with use, and it was not altogether guiltless of sometimes dripping down on to the hearth; but there was abundance of this building

material, and it was not difficult to renew the chimney when it was in need of repair. This had to be done two or three times during the course of the winter. On more exposed spots we employed walrus-flesh, bone, and such-like materials to strengthen it.

Our cookery was as simple as possible. It consisted in boiling bear's flesh and soup (bouillon) in the morning, and frying steak in the evening. We consumed large quantities at every meal, and, strange to say, we never grew tired of this food, but always ate it with a ravenous appetite. We sometimes either ate blubber with it, or dipped the pieces of meat in a little oil. A long time might often pass when we ate almost nothing but meat, and scarcely tasted fat; but, when one of us felt inclined for it again, he would, perhaps, fish up some pieces of burnt blubber out of the lamps, or eat what was left of the blubber from which we had melted the lamp-oil. We called these cakes, and thought them uncommonly nice, and we were always talking of how delicious they would have been if we could have had a little sugar on them.

We still had some of the provisions we had brought from the *Fram*, but these we decided not to use during the winter. They were placed in a depôt to be kept until the spring, when we should move on. The depôt was well loaded with stones to prevent the foxes from running away with the bags. They were impudent enough already, and took all the movable property they

could lay hold of. I discovered, for instance, on October 10th, that they had gone off with a quantity of odds and ends I had left in another depôt during the erection of the hut; they had taken everything that they could possibly carry with them, such as pieces of bamboo, steel wire, harpoons and harpoon-lines, my collection of stones, mosses, etc., which were stored in small sail-cloth bags. Perhaps the worst of all was that they had gone off with a large ball of twine, which had been our hope and comfort when thinking of the time when we should want to make clothes, shoes, and sleeping-bags of bearskin for the winter; for we had reckoned on making thread out of the twine. It was fortunate that they had not gone off with the theodolite, and our other instruments which stood there; but these must have been too heavy for them. I was angry when I made this discovery, and what made it more aggravating, it happened on my birthday. And matters did not improve, when, while hunting about in the twilight on the beach above the place where the things had been lying, to see if I could at any rate discover tracks to show which way those demons had taken them, I met a fox that stopped at a distance of 20 feet from me, sat down, and uttered some exasperating howls so piercing and weird, that I had to stop my ears. It was evidently on its way to my things again, and was now provoked at being disturbed. I got hold of some large stones and flung them at it.

It ran off a little way, but then seated itself upon the edge of the glacier and howled on, while I went home to the hut in a rag laye, down and speculated as to what we should do to be revenged on the obnoxious animals. We could not spare cartridges to shoot them with, but we might make a trap of stones. This we determined to do, but nothing ever came of it; there were always so many other things to occupy us at first, while we still had the opportunity, before the snow covered the talus, and while it was light enough to find suitable stones. Meanwhile the foxes continued to annoy us. One day they had taken our thermometer,* which we always kept outside the hut, and gone off with it. We searched for it in vain for a long time, until at last we found it buried in a heap of snow a little way off. From that time we were very careful to place a stone over it at night, but one morning found that the foxes had turned over the stone, and had gone off with the thermometer again. The only thing we found this time was the case, which they had thrown away a little way off. The thermometer itself we were never to see again; the snow had unfortunately drifted in the night, so that the tracks had disappeared. Goodness only knows what fox-hole it now adorns; but from that day

* It was a registering thermometer, which was also used as a sling-thermometer.

we learned a lesson, and henceforward fastened our last thermometer securely.

Meanwhile time passed. The sun sank lower and lower, until on the 15th October we saw it for the last time above the ridge to the south; the days grew rapidly darker, and then began our third polar night.

We shot two more bears in the autumn, one on the 8th and one on the 21st October; but from that time we saw no more until the following spring. When I awoke on the morning of the 8th October, I heard the crunching of heavy steps in the snow outside, and then began a rummaging about among our meat and blubber up on the roof. I could hear it was a bear, and crept out with my gun, but when I came out of the passage, I could see nothing in the moonlight. The animal had noticed me, and had already disappeared. We did not altogether regret this, as we had no great desire to set to at the cold task of skinning now, in a wind, and with 39° (70·2° Fahr.) of frost.

There was not much variety in our life. It consisted in cooking and eating breakfast in the morning. Then, perhaps, came another nap, after which we would go out to get a little exercise. Of this, however, we took no more than was necessary, as our clothes, saturated as they were with fat, and worn and torn in many places, were not exactly adapted for remaining in the open air in winter. Our wind-clothes, which we should have had outside as a protection against the wind, were so worn and torn

that we could not use them ; and we had so little thread to patch them with, that I did not think we ought to use any of it until the spring, when we had to prepare for our start. I had counted on being able to make ourselves clothes of bear-skins, but it took time to cleanse them from all blubber and fat, and it was even a slower business getting them dried. The only way to do this was to spread them out under the roof of the hut, but there was room for only one at a time. When at last one was ready, we had first of all to use it on our bed, for we were lying on raw, greasy skins, which were gradually rotting. When our bed had been put in order with dried skins, we had to think about making a sleeping-bag, as, after a time, the blanket-bag that we had got rather cold to sleep in. About Christmas time, accordingly, we at last managed to make ourselves a bear-skin bag. In this way all the skins we could prepare were used up, and we continued to wear the clothes we had throughout the winter.

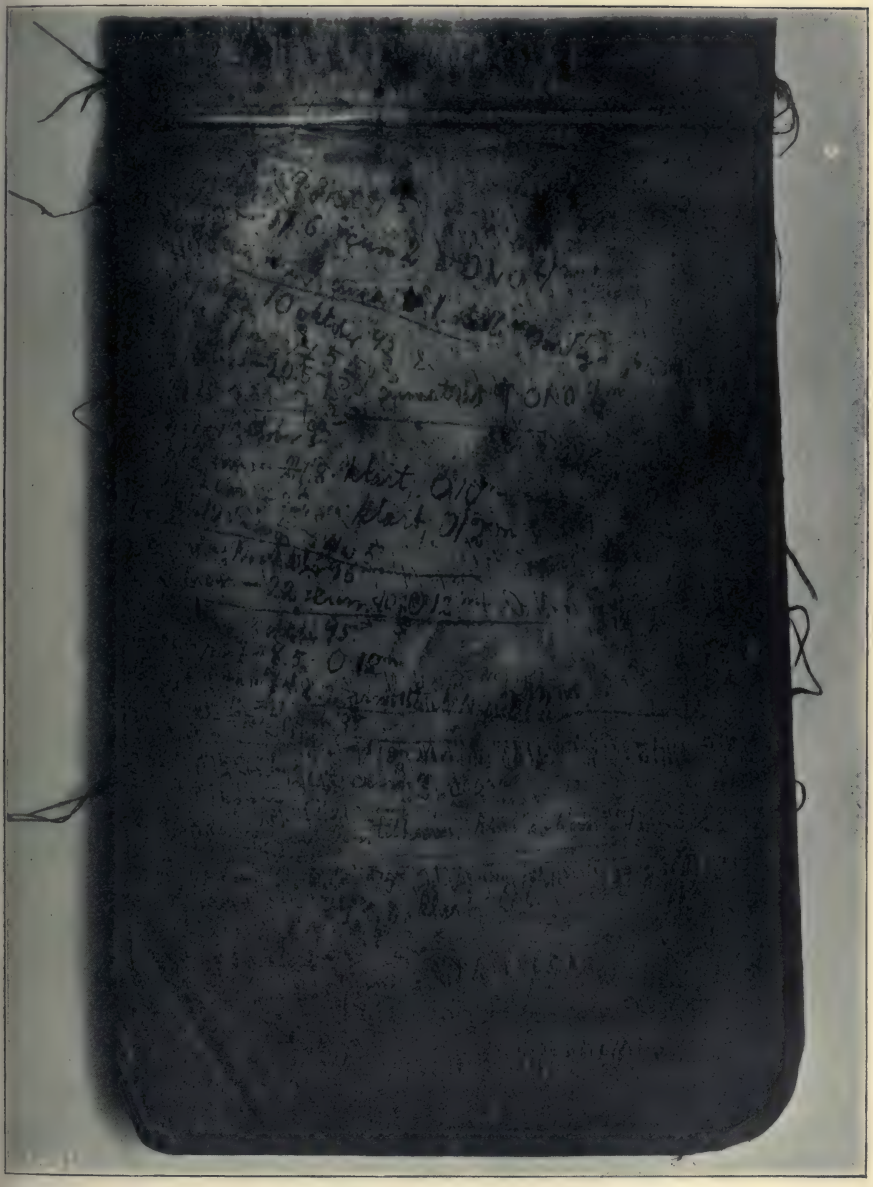
These walks, too, were a doubtful pleasure, because there is always a wind there, and it blew hard under the steep cliff. We felt it a wonderful relief when it occasionally happened to be almost calm. As a rule the wind howled above us, and lashed the snow along, so that everything was wrapped in mist. Many days would sometimes pass almost without our putting our heads out of the passage, and it was only bare necessity that drove us out to fetch ice for drinking-water, or a leg or carcase

of a bear for food, or some blubber for fuel. As a rule we also brought in some sea-water ice, or, if there were an opening or a crack to be found, a little sea-water for our soup.

When we came in, and had mustered up appetite for another meal, we had to prepare supper, eat till we were satisfied, and then get into our bag and sleep as long as possible, to pass the time. On the whole we had quite a comfortable time in our hut. By means of our train-oil lamps we could keep the temperature in the middle of the room at about freezing point. Near the wall, however, it was considerably colder, and there the damp deposited itself in the shape of beautiful hoar-frost crystals, so that the stones were quite white, and in happy moments we could dream that we dwelt in marble halls. This splendour, however, had its disadvantages, for when the outside temperature rose, or when we heated up the hut a little, rivulets ran down the wall into our sleeping-bag. We took turns at being cook, and Tuesday, when one ended his cooking-week, and the other began, afforded on that account the one variation in our lives, and formed a boundary-mark by which we divided out our time. We always reckoned up how many cooking-weeks we had before we should break up our camp in the spring. I had hoped to get so much done this winter, work up my observations and notes, and write some of the account of our journey; but very little was done. It was not only the poor, flickering

light of the oil-lamp which hindered me, nor yet the uncomfortable position, either lying on one's back, or sitting up and fidgeting about on the hard stones, while the part of the body thus exposed to pressure ached; but altogether these surroundings did not predispose one to work. The brain worked dully, and I never felt inclined to write anything. Perhaps, too, this was owing to the impossibility of keeping what you wrote upon clean; if you only took hold of a piece of paper your fingers left a dark brown, greasy mark, and if a corner of your clothes brushed across it, a dark streak appeared. Our journals of this period look dreadful. They are "black books" in the literal sense of the term. Ah! how we longed for the time when we should once more be able to write on clean white paper and with black ink. I often had difficulty in reading the pencil notes I had written the day before, and now, in writing this book, it is all I can do to find out what was once written on these dirty, dark brown pages. I expose them to all possible lights, I examine them with a magnifying glass; but notwithstanding, I often have to give it up.

The entries in my journal for this time are exceedingly meagre; there are sometimes weeks when there is nothing but the most necessary meteorological observations with remarks. The chief reason for this is that our life was so monotonous that there was nothing to write about. The same thoughts came and went day after



AN ILLEGIBLE PAGE FROM MY DIARY

day; there was no more variety in them than in our conversation. The very emptiness of the journal really gives the best representation of our life during the nine months we lived there.

"Wednesday, November 27th. -23° C. ($9{\cdot}4^{\circ}$ below zero Fahr.). It is windy weather, the snow whirling about your ears, directly you put your head out of the passage. Everything is grey; the black stones can be made out in the snow a little way up the beach, and above you can just divine the presence of the dark cliff; but wherever else the gaze is turned, out to sea, or up the fjord, there is the same leaden darkness, one is shut out from the wide world, shut into oneself. The wind comes in sharp gusts, driving the snow before it; but up under the crest of the mountain it whistles and roars in the crevices and holes of the basaltic walls—the same never-ending song that it has sung through the thousands of years that are past, and will go on singing through thousands of years to come. And the snow whirls along in its age-old dance; it spreads itself in all the crevices and hollows, but it does not succeed in covering up the stones on the beach; black as ever, they project into the night. On the open space in front of the hut, two figures are running up and down like shadows in the winter darkness to keep themselves warm, and so they will run up and down on the path they have trampled out, day after day, till the spring comes."

"Sunday, December 1st. Wonderfully beautiful weather for the last few days; one can never weary of going up and down outside, while the moon transforms the whole of this ice world into a fairy-land. The hut is still in shadow under the mountain which hangs above it, dark and lowering; but the moonlight floats over ice and fjord, and is cast back glittering from every snowy ridge and hill. A weird beauty, without feeling, as though of a dead planet, built of shining white marble. Just so must the mountains stand there, frozen and icy cold; just so must the lakes lie congealed beneath their snowy covering; and now as ever the moon sails silently and slowly on her endless course through the lifeless space. And everything so still, so awfully still, with the silence that shall one day reign, when the earth again becomes desolate and empty, when the fox will no more haunt these moraines, when the bear will no longer wander about on the ice out there, when even the wind will not rage—infinite silence! In the flaming aurora borealis, the spirit of space hovers over the frozen waters. The soul bows down before the majesty of night and death."

"Monday, December 2nd. Morning. To-day I can hear it blowing again outside, and we shall have an unpleasant walk. It is bitterly cold now in our worn, greasy clothes. It is not so bad when there is no wind; but even if there is only a little, it goes right through one. But what does it matter? Will not the spring one

day come here, too? Yes; and over us arches the same heaven now as always, high and calm as ever; and as we walk up and down here shivering, we gaze into the boundless starry space, and all our privations and sorrows shrink into nothingness. Starlit night, thou art sublimely beautiful, but dost thou not lend our spirit too mighty wings, greater than we can control? Could'st thou but solve the riddle of existence! We feel ourselves the centre of the universe, and struggle for life, for immortality, one seeking it here, another hereafter; while thy silent splendour proclaims: at the command of the Eternal, you came into existence on a paltry planet, as diminutive links in the endless chain of transformations; at another command, you will be wiped out again. Who then, through an eternity of eternities, will remember that there once was an ephemeral being who could bind sound and light in chains, and who was purblind enough to spend years of his brief existence in drifting through frozen seas? Is, then, the whole thing but the meteor of a moment? Will the whole history of the world evaporate like a dark, gold-edged cloud in the glow of evening—achieving nothing, leaving no trace, passing like a caprice?

"Evening. That fox is playing us a great many tricks, whatever he can move he goes off with. He has once gnawed off the band with which the door-skin is fastened, and every now and then we hear him at it again, and have to go out and knock on the roof of the passage.

To-day he went off with one of our sails, in which our salt-water ice was lying. We were not a little alarmed, when we went to fetch ice, and found sail and all gone. We had no doubt as to who had been there, but we could not under any circumstances afford to lose our precious sail on which we depended for our voyage to Spitzbergen in the spring, and we tramped about in the dark, up the beach, over the level, and down towards the sea. We looked everywhere, but nothing was to be seen of it. At last we had almost given it up, when Johansen, in going on to the ice to get more salt-water ice, found it at the edge of the shore. Our joy was great; but it was wonderful that the fox had been able to drag that great sail, full of ice too, so far. Down there, however, it had come unfolded, and then he could do nothing with it. But what does he want with things like this? Is it to lie upon in his winter den? One would almost think so. I only wish I could come upon that den, and find the thermometer again, and the ball of twine, and the harpoon line, and all the other precious things he has taken, the brute!"

"Thursday, December 5th. It seems as if it would never end. But patience a little longer, and spring will come, the fairest spring that earth can give us. There is furious weather outside, and snow, and it is pleasant to lie here in our warm hut, eating steak, and listening to the wind raging over us."

"Tuesday, December 10th. It has been a bad wind. Johansen discovered to-day that his kayak had disappeared. After some search he found it again several hundred feet off, up the beach; it was a good deal knocked about, too. The wind must first have lifted it right over my kayak, and then over one big stone after another. It begins to be too much of a good thing when even the kayaks take to flying about in the air. The atmosphere is dark out over the sea, so the wind has probably broken up the ice, and driven it out, and there is open water once more.*

"Last night it all at once grew wonderfully calm, and the air was surprisingly mild. It was delightful to be out, and it is long since we have had such a long walk on our beat. It does one good to stretch one's legs now and then, otherwise I suppose we should become quite stiff here in our winter lair. Fancy, only 12° (21½° F.) of frost in the middle of December! We might almost imagine ourselves at home—forget that we were in a land of snow to the north of the eighty-first parallel."

"Thursday, December 12th. Between 6 and 9 this morning there were a number of shooting stars, most of them in Serpentarius. Some came right from the Great Bear; afterwards they chiefly came from the Bull, or

* It often blew very fresh there under the mountain. Another time, one of my snowshoes, which was stuck into the snowdrift beside the hut, was broken short off by the wind. It was a strong piece of maple.

Aldebaran, or the Pleiades. Several of them were very bright, and some drew a streak of shining dust after them. Lovely weather. But night and day are now equally dark. We walk up and down, up and down, on the level, in the darkness. Heaven only knows how many steps we shall take on that level before the winter ends. Through the gloom we could see faintly only the black cliffs, and the rocky ridges, and the great stones on the beach, which the wind always sweeps clean. Above us the sky, clear and brilliant with stars, sheds its peace over the earth; far in the west falls shower after shower of stars, some faint, scarcely visible, others bright like Roman candles, all with a message from distant worlds. Low in the south lies a bank of clouds, now and again outlined by the gleam of the northern lights; but out over the sea the sky is dark; there is open water there. It is quite pleasant to look at it; one does not feel so shut in; it is like a connecting link with life that dark sea, the mighty artery of the world, which carries tidings from land to land, from people to people, on which civilisation is borne victorious through the earth; next summer it will carry us home."

"Thursday, December 19th. —28·5° (19·3° below zero Fahr.). It has turned cold again, and is bitter weather to be out in. But what does it signify? We are comfortable and warm in here, and do not need to go out more than we like. All the out-of-door work we have is

M.ª LAGAN & CUMMING LITH.ª EDINBURGH

Streamers of Aurora Borealis, 28th November 1893. Pastel sketch.

to bring in fresh and salt water ice two or three times a week, meat and blubber now and again, and very occasionally a skin to dry under the roof. And Christmas, the season of rejoicing, is drawing near. At home every one is busy now, scarcely knowing how to get time for everything; but here there is no bustle; all we want is to make the time pass. Ah, to sleep, sleep! The pot is simmering pleasantly over the hearth; I am sitting waiting for breakfast, and gazing into the flickering flames, while my thoughts travel far away. What is the strange power in fire and light that all created beings seek them, from the primary lump of protoplasm in the sea, to the roving child of man, who stops in his wanderings, makes up a fire in the wood, and sits down to dismiss all care, and revel in the crackling warmth. Involuntarily do these snake-like, fiery tongues arrest the eye; you gaze down into them as if you could read your fate there, and memories glide past in motley train. What, then, is privation? what the present? Forget it, forget yourself; you have the power to recall all that is beautiful, and then wait for the summer . . . . By the light of the lamp she sits sewing in the winter evening. Beside her stands a little maiden with blue eyes and golden hair, playing with a doll. She looks tenderly at the child, and strokes her hair; but her eyes fill, and the big tears fall upon her work.

"Johansen is lying beside me asleep; he smiles in his

sleep. Poor fellow! he must be dreaming he is at home at Christmas time with those he loves. But sleep on,—sleep and dream, while the winter passes; for then comes spring—the spring of life."

"Sunday, December 22nd. Walked about outside for a long time yesterday evening, while Johansen was having a thorough cleaning in the hut, in preparation for Christmas. This consisted chiefly in scraping the ashes out of the hearth, gathering up the refuse of bone and meat, and throwing it away, and then breaking up the ice, which has frozen together with all kinds of rubbish and refuse, into a thick layer upon the floor, making the hut rather low in the roof.

"The northern lights were wonderful. However often we see this weird play of light, we never tire of gazing at it; it seems to cast a spell over both sight and sense till it is impossible to tear oneself away. It begins to dawn with a pale, yellow, spectral light behind the mountain in the east, like the reflection of a fire far away. It broadens, and soon the whole of the eastern sky is one glowing mass of fire. Now it fades again, and gathers in a brightly luminous belt of mist stretching towards the south-west, with only a few patches of luminous haze visible here and there. After a while, scattered rays suddenly shoot up from the fiery mist, almost reaching to the zenith; then more; they play over the belt in a wild chase from east to west. They seem to be always darting nearer from a long, long way

off. But suddenly a perfect veil of rays showers from the zenith out over the northern sky; they are so fine and bright, like the finest of glittering silver threads. Is it the fire-giant Surt himself, striking his mighty silver harp, so that the strings tremble and sparkle in the glow of the flames of Muspelheim? Yes, it is harp music, wildly storming in the darkness; it is the riotous war-dance of Surt's sons. And again, at times, it is like softly playing, gently-rocking, silvery waves, on which dreams travel into unknown worlds.

"The winter solstice has come, and the sun is at its lowest; but still, at midday we can just see a faint glimmer of it over the ridges in the south. Now it is again beginning to mount northwards; day by day it will grow lighter and lighter, and the time will pass rapidly. Oh, how well I can now understand our forefathers' old custom of holding an uproarious sacrificial banquet in the middle of winter, when the power of the winter darkness was broken. We would hold an uproarious feast here, if we had anything to feast with; but we have nothing. What need is there either? We shall hold our silent festival in the spirit, and think of the spring.

"In my walk I look at Jupiter over there above the crest of the mountain—Jupiter, the planet of the home; it seems to smile at us, and I recognise my good attendant spirit. Am I superstitious? This life and this scenery might well make one so; and, in fact, is not

every one superstitious, each in his own way? Have not I a firm belief in my star, and that we shall meet again? It has scarcely forsaken me for a day. Death, I believe, can never approach before one's mission is accomplished, never comes without one feeling its proximity; and yet a cold fate may one day cut the thread without warning."

"Tuesday, December 24th. At 2 p.m. to-day — 24° C. (11·2° below zero Fahr.). And this is Christmas Eve, cold and windy out of doors, and cold and draughty indoors. How desolate it is! Never before have we had such a Christmas Eve.

"At home the bells are now ringing Christmas in. I can hear their sound as it swings through the air from the church tower. How beautiful it is!

"Now the candles are being lighted on the Christmas-trees, the children are let in and dance round in joyous delight. I must have a Christmas party for children when I get home. This is the time of rejoicing, and there is feasting in every cottage at home. And we are keeping the festival in our little way. Johansen has turned his shirt, and put the outside shirt next him; I have done the same, and then I have changed my drawers, and put on the others that I had wrung out in warm water. And I have washed myself, too, in a quarter of a cup of warm water, with the discarded drawers as sponge and towel. Now I feel quite another being; my clothes do not stick to my body as much as

they did. Then for supper we had 'fiskegratin,' made of powdered fish and maize-meal, with train-oil to it instead of butter, both fried and boiled (one as dry as the other), and for dessert we had bread fried in train-oil. To-morrow morning we are going to have chocolate and bread."*

"Wednesday, December 25th. We have got lovely Christmas weather, hardly any wind, and such bright, beautiful moonlight. It gives one quite a solemn feeling. It is the peace of thousands of years. In the afternoon the northern lights were exceptionally beautiful. When I came out at six o'clock there was a bright, pale yellow bow in the southern sky. It remained for a long time almost unchanged, and then began to grow much brighter at the upper margin of the bow behind the mountain crests in the east. It smouldered for some time, and then all at once light darted out westwards along the bow; streamers shot up all along it towards the zenith, and in an instant the whole of the southern sky from the arc to the zenith was aflame. It flickered and blazed, it whirled round like a whirlwind (moving with the sun), rays darted backwards and forwards, now red and reddish-violet, now yellow, green, and dazzling white; now the rays were red at the

* Christmas Eve and New Year's Eve were the only occasions on which we allowed ourselves to take any of the provisions which we were keeping for our journey southwards.

bottom, and yellow and green farther up, and then again this order was inverted. Higher and higher it rose; now it came on the north side of the zenith too, for a moment there was a splendid corona, and then it all became one whirling mass of fire up there; it was like a whirlpool of fire in red, yellow, and green, and the eye was dazzled with looking at it. It then drew across to the northern sky, where it remained a long time, but not in such brilliancy. The arc from which it had sprung in the south was still visible, but soon disappeared. The movement of the rays was chiefly from west to east, but sometimes the reverse. It afterwards flared up brightly several times in the northern sky; I counted as many as six parallel bands at one time, but they did not attain to the brightness of the former ones.

"And this is Christmas Day. There are family dinners going on at home. I can see the dignified old father standing smiling and happy in the doorway to welcome children and grandchildren. Out-of-doors the snow is falling softly and silently in big flakes, the young folk come rushing in fresh and rosy, stamp the snow off their feet in the passage, shake their things and hang them up, and then enter the drawing-room, where the fire is crackling comfortably and cosily in the stove; and they can see the snowflakes falling outside, and covering the Christmas corn-sheaf. A delicious smell of roasting comes from the kitchen, and in the dining-room the long table is laid for a good, old-fashioned dinner

with good old wine. How nice and comfortable everything is! One might fall ill with longing to be home. But wait, wait, when summer comes . . . . .

"Oh, the road to the stars is both long and difficult."

"Tuesday, December 31st. And this year too is vanishing. It has been strange, but after all it has perhaps not been so bad.

"They are ringing out the old year now at home. *Our* church-bell is the icy wind howling over glacier and snowfield, howling fiercely as it whirls the drifting snow on high in cloud after cloud, and sweeps it down upon us from the crest of the mountain up yonder. Far in up the fjord you can see the clouds of snow chasing one another over the ice in front of the gusts of wind, and the snow-dust glittering in the moonlight. And the full moon sails silent and still out of one year into another. She shines alike upon the good and the evil, nor does she notice the wants and yearnings of the new year. Solitary, forsaken, hundreds of miles from all that one holds dear; but the thoughts flit restlessly to and fro on their silent paths. Once more a leaf is turned in the book of eternity, a new blank page is opened, and no one knows what will be written on it."

CHAPTER VIII.

The New Year, 1896.

"Wednesday, January 1st, 1896. — 41·5° C. (42·2° below zero Fahr.). So a new year has come, the year of joy and home-coming. In bright moonlight 1895 departed, and in bright moonlight 1896 begins; but it is bitterly cold, the coldest days we have yet known here. I felt it, too, yesterday, when all my finger-tips were frost-bitten. I thought I had done with all that last spring."

"Friday, January 3rd. Morning: it is still clear and cold out of doors; I can hear reports from the glacier. It lies up there on the crest of the mountain like a mighty ice-giant peering down at us through the clefts. It spreads its giant's body all over the land, and stretches out its limbs on all sides into the sea. But whenever it turns cold—colder than it has hitherto been —it writhes horribly, and crevice after crevice appears in the huge body; there is a noise like the discharge of guns, and the sky and the earth tremble so that I can feel the ground that I am lying on quake. One is

almost afraid that it will some day come rolling over upon one.*

"Johansen is asleep, and making the hut resound. I am glad his mother cannot see him now. She would certainly pity her boy, so black and grimy, and ragged as he is, with sooty streaks all over his face. But wait, only wait! She shall have him again, safe and sound, and fresh and rosy."

"Wednesday, January 8th. Last night the wind blew the sledge to which our thermometer was hanging out over the slope. Stormy weather outside—furious weather, almost taking away your breath if you put your head out. We lie here trying to sleep—sleep the time away. But we cannot always do it. Oh, those long sleepless nights when you turn from side to side, kick your feet to put a little warmth into them, and wish for only one thing in the world—sleep! The thoughts are constantly busy with everything at home, but the long, heavy body lies here trying in vain to find an endurable position among the rough stones. However, time crawls on, and now little Liv's birthday has come. She is three years old to-day, and must be a big girl now.

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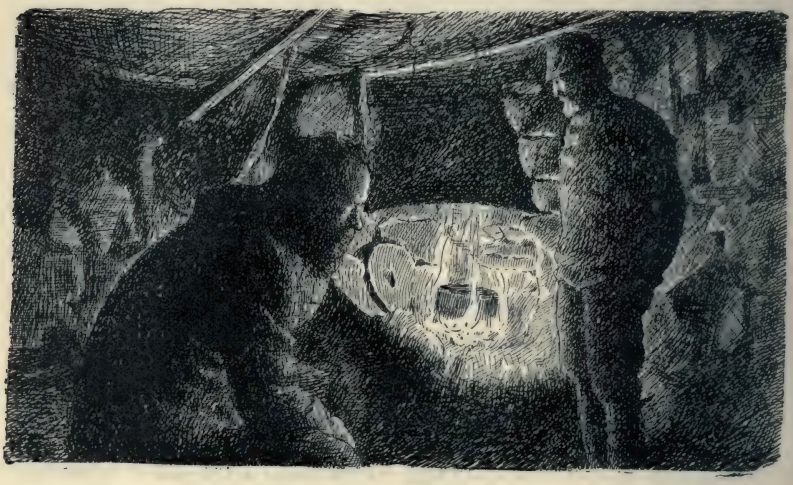
* These rumblings in the glacier are due to rifts which are formed in the mass of ice when the cold causes it to contract. New rifts seemed to be formed only when the temperature sank lower than it had previously been in the course of that winter; at least it was only then that we heard the rumblings.

Poor little thing! You don't miss your father now; and next birthday I shall be with you, I hope. What good friends we shall be! You shall ride-a-cock-horse, and I will tell you stories from the north about bears, foxes, walruses, and all the strange animals up there in the ice. No, I can't bear to think of it."

"Saturday, February 1st. Here I am down with the



"LIFE IN OUR HUT."

rheumatism. Outside it is growing gradually lighter day by day, the sky above the glaciers in the south grows redder, until at last one day the sun will rise above the crest, and our last winter night be past. Spring is coming! I have often thought spring sad. Was it because it vanished so quickly, because it carried promises that summer never fulfilled? But there is no

sadness in this spring; its promises will be kept; it would be too cruel if they were not."

It was a strange existence, lying thus in a hut underground the whole winter through, without a thing to turn one's hand to. How we longed for a book! How delightful our life on board the *Fram* appeared, when we had the whole library to fall back upon. We would often tell each other how beautiful this sort of life would have been after all, if we had only had anything to read. Johansen always spoke with a sigh of Heyse's novels; he had specially liked those on board, and he had not been able to finish the last one he was reading. The little readable matter which was to be found in our navigation-table and almanack I had read so many times already that I knew it almost by heart—all about the Norwegian royal family, all about persons apparently drowned, and all about self-help for fishermen. Yet it was always a comfort to see these books; the sight of the printed letters gave one a feeling that there was after all a little bit of the civilised man left. All that we really had to talk about had long ago been thoroughly thrashed out, and, indeed, there were not many thoughts of common interest that we had not exchanged. The chief pleasure left to us was to picture to each other how we should make up next winter at home for everything we had missed during our sojourn here. We felt that we should have learnt for good and all to set store by all the good things of life, such as food, drink, clothes, shoes, house,

home, good neighbours, and all the rest of it. Frequently we occupied ourselves, too, in calculating how far the *Fram* could have drifted, and whether there was any possibility of her getting home to Norway before us. It seemed a safe assumption that she might drift out into the sea between Spitzbergen and Greenland next summer or autumn, and probability seemed to point to her being in Norway in August or September. But there was just the possibility that she might arrive earlier in the summer; or, on the other hand, *we* might not reach home until later in the autumn. This was the great question to which we could give no certain answer, and we reflected with sorrow, that she might perhaps get home first. What would our friends then think about us? Scarcely anyone would have the least hope of seeing us again, not even our comrades on board the *Fram*. It seemed to us, however, that this could scarcely happen; we could not but reach home in July, and it was hardly to be expected that the *Fram* could be free from the ice so early in the summer.

But where were we? And how great was the distance we had to travel? Over and over again I reckoned out our observations of the autumn and summer and spring, but the whole matter was a perpetual puzzle. It seemed clear, indeed, that we must be lying somewhere far to the west, perhaps off the west coast of Franz Josef Land, a little north of Cape Lofley, as I had conjectured in the autumn. But, if

that were so, what could the lands be which we had seen to the northward? And what was the land to which we had first come? From the first group of islands, which I had called White Land (Hvitenland), to where we now lie, we had passed about 7° of longitude—that our observations proved conclusively. But if we were now in the longitude of Cape Fligely, these islands must lie on a meridian so far east that it would fall between King Oscar's Land and Crown Prince Rudolf Land; and yet we had been much further east and had seen nothing of these lands. How was this to be explained? And furthermore, the land we saw had disappeared to the southward; and we saw no indication of islands further east. No, we could not have been near any known land; we must be upon some island lying further west, in the strait between Franz Josef Land and Spitzbergen; and we could not but think of the hitherto so enigmatic Gillies Land. But this, too, seemed difficult to explain; for it was hard to understand how, in this comparatively narrow strait, such an extensive mass of land as this could find room without coming so near the North-East Land of Spitzbergen that it could easily be seen from it. No other conclusion, however, seemed at all plausible. We had long ago given up the idea that our watches could be even approximately right; for in that case, as already mentioned, we must have come right across Payer's Wilczek Land and Dove Glacier without having noticed them. This theory was consequently excluded.

There were other things, too, that greatly puzzled me. If we were on a new land, near Spitzbergen, why were the rose gulls never seen there, while we had found them in flocks here to the north? And then there was the great variation of the compass. Unfortunately I had no chart of the variations with me, and I could not remember where the zero meridian of variation lay—the boundary line between easterly and westerly variation. I thought, however, that it lay somewhere near the North-East Land; and here we had still a variation of about 20°. The whole thing was and remained an insoluble riddle.

As the daylight began to lengthen later in the spring, I made a discovery which had the effect of still more hopelessly bewildering us. At two points on the horizon about W S.W., I fancied that I could see land looming in the air. The appearance recurred again and again, and at last I was quite certain that it really was land; but it must be very far away; at least 69 miles, I thought.* If it had been difficult to find room between Franz Josef Land and North-East Land for the islands we had hitherto seen, it was more difficult still to find room for these new ones. Could it be the North-East Land itself? This seemed scarcely credible. This land must lie in about 81° or so northward, while the North-East Land does not reach much north of 80°. But at least these islands must be pretty near North-East Land, and

* It proved afterwards that the distance was about 56 miles.

if we once reached them, we could not have much farther to go, and would perhaps find open water all the way to the Tromsö sloop, on which our fancy had now dwelt for over a year, and which was to take us home.

The thought of all the good things we should find on board that sloop was what comforted us whenever the time hung unendurably heavy on our hands. Our life was not, indeed, altogether luxurious. How we longed for a change in the uniformity of our diet. If only we could have had a little sugar and farinaceous food, in addition to all the excellent meat we had, we could have lived like princes. Our thoughts dwelt longingly on great platters full of cakes, not to mention bread and potatoes. How we would make up for lost time when we got back; and we would begin as soon as we got on board that Tromsö sloop. Would they have potatoes on board? Would they have fresh bread? At worst, even hard ship's bread would not be so bad, especially if we could get it fried in sugar and butter. But better even than food would be the clean clothes we could put on. And then books—only to think of books! Ugh, the clothes we lived in were horrible! and when we wanted to enjoy a really delightful hour we would set to work imagining a great, bright, clean shop, where the walls were hung with nothing but new, clean, soft woollen clothes, from which we could pick out everything we wanted. Only to think of shirts, vests, drawers, soft and warm woollen trousers, deliciously

comfortable jerseys, and then clean woollen stockings and warm felt slippers—could anything more delightful be imagined? And then a Turkish bath! We would sit up side by side in our sleeping-bag for hours at a time, and talk of all these things. They seemed almost unimaginable. Fancy being able to throw away all the heavy, oily rags we had to live in, glued as they were to our bodies. Our legs suffered most; for there our trousers stuck fast to our knees, so that when we moved they abraded and tore the skin inside our thighs till it was all raw and bleeding. I had the greatest difficulty in keeping these sores from becoming altogether too ingrained with fat and dirt, and had to be perpetually washing them with moss, or a rag from one of the bandages in our medicine-bag, and a little water, which I warmed in a cup over the lamp. I have never before understood what a magnificent invention soap really is. We made all sorts of attempts to wash the worst of the dirt away; but they were all equally unsuccessful. Water had no effect upon all this grease; it was better to scour oneself with moss and sand. We could find plenty of sand in the walls of the hut, when we hacked the ice off them. The best method, however, was to get our hands thoroughly lubricated with warm bears' blood and train-oil, and then scrub it off again with moss. They thus became as white and soft as the hands of the most delicate lady, and we could scarcely believe that they belonged to our own bodies. When

OUR WINTER HUT. 31 DECEMBER, 1895.

(By Lars Jorde, from a photograph).

there was none of this toilet preparation to be had, we found the next best plan was to scrape our skin with a knife.

If it was difficult to get our own bodies clean, it was a sheer impossibility as regards our clothes. We tried all possible ways ; we washed them both in Eskimo fashion and in our own ; but neither was of much avail. We boiled our shirts in the pot hour after hour, but took them out only to find them just as full of grease as when we put them in. Then we took to wringing the train-oil out of them. This was a little better ; but the only thing that produced any real effect was to boil them, and then scrape them with a knife while they were still warm. By holding them in our teeth and our left hand and stretching them out, while we scraped them all over with the right hand, we managed to get amazing quantities of fat out of them ; and we could almost have believed that they were quite clean when we put them on again after they were dry. The fat which we scraped off was, of course, a welcome addition to our fuel.

In the meanwhile our hair and beard grew entirely wild. It is true we had scissors and could have cut them ; but as our supply of clothes was by no means too lavish, we thought it kept us a little warmer to have all this hair, which began to flow down over our shoulders. But it was coal-black like our faces, and we thought our teeth and the whites of our eyes shone with an uncanny whiteness now that we could see each

other again in the daylight of the spring. On the whole, however, we were so accustomed to each other's appearance that we really found nothing remarkable about it, and not until we fell in with other people and found that they were not precisely of that opinion, did we begin to recognise that our outer man was, perhaps, open to criticism.

It was a strange life, and in many ways it put our patience to a severe test; but it was not so unendurable as one might suppose. We, at any rate, thought that, all things considered, we were fairly well off. Our spirits were good the whole time; we looked serenely towards the future, and rejoiced in the thought of all the delights it had in store for us. We did not even have recourse to quarrelling to while away the time. After our return, Johansen was once asked how we two had got on during the winter, and whether we had managed not to fall out with each other; for it is said to be a severe test for two men to live so long together in perfect isolation. "Oh, no," he answered, "we didn't quarrel; the only thing was that I have the bad habit of snoring in my sleep, and then Nansen used to kick me in the back." I cannot deny that this is the case; I gave him many a well-meant kick, but fortunately he only shook himself a little and slept calmly on.

Thus did our time pass. We did our best to sleep away as much as possible of it. We carried this art to a high pitch of perfection, and could sometimes put in as

much as 20 hours' sleep in the 24. If anyone still holds to the old superstition that scurvy is due to lack of exercise, he may look upon us as living evidences to the contrary ; for all the time our health was excellent. As the light now began to return with the spring, however, we were more inclined to go out. Besides, it was not always so cold now, and we had to restrict our sleep a little. Then, too, the time for our departure was approaching, and we had plenty to occupy us in the way of preparation and so forth.

"Tuesday, February 25th. Lovely weather to be out in to-day ; it is as though spring were beginning. We have seen the first birds, first a flock of half a score of little auks (*Mergulus alle*), then a flock of four ; they came from the south along the land, evidently through the sound in the south-east, and disappeared behind the mountain crest to the north-west of us. Once more we heard their cheerful twittering, and it roused a responsive echo in the soul. A little later we heard it again, and then it seemed as if they were perched on the mountain above us. It was the first greeting from life. Blessed birds, how welcome you are!

"It was quite like a spring evening at home ; the sun's red glow faded little by little into golden clouds, and the moon rose. I went up and down outside, and dreamt I was in Norway on a spring evening."

"Wednesday, February 26th. To-day we ought to have had the sun again, but the sky was cloudy."

"Friday, February 28th. I have discovered that it is possible to get twelve threads out of a bit of twine, and am as happy as a king. We have thread enough now, and our wind-clothes shall be whole once more. It is possible, too, to ravel out the canvas in the bags, and use it for thread."

"Saturday, February 29th. The sun high above the glacier to-day. We must begin to economise in train-oil in earnest now if we are to get away from here, or there will be too little blubber for the journey."

"Wednesday, March 4th. When Johansen went out this morning, the mountain above us was covered with little auks, which flew twittering from crest to crest, and sat all over the glacier. When we went out again later on, they were gone."

"Friday, March 6th. We are faring badly now. We have to sleep in the dark to save oil, and can only cook once a day."

"Sunday, March 8th. Shot a bear. Johansen saw ten flocks of little auks flying up the sound this morning."

"Tuesday, March 10th. That bear the day before yesterday came in the nick of time, and an amusing fellow he was too. We were very badly off both for blubber and meat, but most for blubber, and we were longing for a bear; we thought it must be about time for them to come again now. I had just spent Sunday morning in mending my wind-trousers and patching

my 'komager' so as to be all ready if a bear should come. Johansen, whose cooking week it was, had been sewing a little too, and was just cleaning up the hut for Sunday, and taking out some bone and meat: he had taken it as far as the passage. But no sooner had he raised the skin over the opening out there, than I heard him come tumbling head foremost in again over the bone heap and say: 'There's a bear standing just outside the door.' He snatched his gun down from where it hung, under the roof, and again put his head into the passage, but drew it quickly back, saying, 'He is standing close by, and must be thinking about coming in.' He managed to draw aside a corner of the door-skin, just enough to give him elbow room to shoot, but it was not altogether easy. The passage was narrow enough before, and now, in addition, it was full of all the back-bones and scraps of meat. I saw him once lift the gun to his shoulder, as he lay crouched together, but take it down again; he had forgotten to cock it, and the bear had moved a little away, so that he only saw its muzzle and paws. But now it began scraping down in the passage with one paw, as if it wanted to come in, and Johansen thought he must fire, even if he could not see. He put out his gun, pointing the barrel at the upper edge of the opening; he thought the shot must go right into the bear's breast, and so he fired. I heard a dull growl, and the crunching of the snow under heavy foot-

steps, which went up towards the talus. Johansen loaded again, and put his head out at the opening. He said he saw it going up there, and that it didn't seem up to much, and forthwith he rushed after it. I, meanwhile, was lying head foremost in the bag hunting for a sock which I could *not* find. At last, after a long search, I

"JOHANSEN FIRED THROUGH THE OPENING."

found it—on the floor, of course. Then I, too, was ready; and well equipped with gun, cartridges, knife, and file (to sharpen the seal-knife), I followed. I had my wind-trousers on, too; they had been hanging unused all through the winter's cold, for want of thread to mend them

with, but now, when the temperature was only — 2° C. (28·4° F.), they of course had to come out. I followed the tracks; they went westwards and northwards along the shore. After a little while I at last met Johansen, who said that the bear lay farther on; he had at last got up to it, and finished it with a shot in the back. While he returned to fetch the sledges, I went on to begin skinning. It was not to be done quite so quickly, however. As I approached the place where I thought it must be lying, I caught sight of the 'dead bear' far ahead, trotting pretty briskly along the shore. Now and then it stopped to look round at me. I ran out on to the ice, to get outside it, if possible, and drive it back, so that we should not have so far to drag it. When I had kept on at this for some time, and was about on a level with it, it began clambering up the glacier, and under some ragged rock. I had not reckoned on a 'dead bear' being able to do this, and the only thing was to stop it as soon as possible; but, just as I got within range, it disappeared over the crest. Soon I saw it again, a good deal higher up and far out of range. It was craning its neck to see if I were following. I went up some way after it, but, as it went on along the mountain more quickly than I could follow it in the deep snow, under which, moreover, there were crevices into which I kept falling up to my waist, I preferred to clamber down on to the fjord-ice again.

In a little while the bear emerged from beneath a perpendicular cliff with a precipitous bit of talus beneath it. Here it began to crawl carefully along at the very top of the talus. I was now afraid of its lying down in a place like this where we could not get at it, and even though the range was long I felt I must fire and see if I could not make it fall over. It did not look as if it had too firm a footing up there. It was blowing like anything here under the cliff, and I saw that the bear had to lie flat down and hold on with its claws when the worst gusts came, and then, too, it had only three paws to hold on with: the right fore-leg had been broken. I went up to a big stone at the lower edge of the talus, took good aim and fired. I saw the bullet strike the snow just beneath it, but whether it was hit or not, it started up and tried to jump over a drift, but slipped, and rolled over. It tried several times to stop itself, but went on, until at last it found its feet, and began to crawl slowly up again. Meanwhile I had loaded again, and the range was now shorter. I fired once more. It stood still a moment, then slipped farther and farther down the drift, at first slowly, then quicker and quicker, rolling over and over. I thought it was coming straight towards me, but comforted myself with the thought that the stone I was standing behind was a good solid one. I squatted down and quickly put a fresh cartridge into my gun The bear had now arrived at the talus below

the drift; it came tearing down, together with stones and lumps of snow, in a series of leaps, each longer than the last. It was a strange sight, this great white body flying through the air, and turning somersault after somersault, as if it had been a piece of wood. At last it took one tremendous leap, and landed against an enormous stone. There was a regular crash, and there it lay close beside me; a few spasms passed through it, and all was over. It was an uncommonly large he-bear, with a beautiful thick fur, which one might well wish to have at home; but the best thing of all was that it was very fat. It was so windy that the gusts were apt to blow you over, if you were not prepared for them; but with the air so mild as it was, wind did not matter much; it would not have been such bad work to skin it, had it not been that it was lying in a hollow, and was so big that one man could not stir it. After a time, however, Johansen came, and at last we had got it dismembered, and had dragged it down to the ice, and piled it on the sledge. We had not gone far, however, before we found that it would be too heavy for us to draw all at once against this wind, and for such a distance. We laid half of it in a heap on the ice, and spread the skin over it, intending to fetch it in a day or two; and even then we had difficulty enough in fighting on against the wind, in the dark, so that it was late at night before we got home. But it was long since we

had so much enjoyed our homecoming, and being able to lie down in our bag, and sup off fresh meat and hot soup."

We lived on that bear for six weeks.

"When Johansen was out this morning at 6, he thought he saw little auks in millions flying up the sound. When we went out at 2 in the afternoon; there was an unceasing passage of flock after flock out to sea, and this continued until late in the afternoon. I saw two guillemots (*Uria grylle*), too, fly over our heads. They are the first we have seen."*

"Wednesday, March 25th. There is the same dark water-sky behind the promontory in the south-west, stretching thence westwards almost to the extreme west. It has been there all through this mild weather with south-westerly wind, from the very beginning of the month. There seems to be always open water there, for no sooner is the sky overcast, then the reflection of water appears in that quarter."

"Thursday, April 2nd. As I awoke at about 8 this evening (our morning happened to fall in the evening to-day), we heard an animal rustling about outside, and gnawing at something. We did not take much

* We had now, as the spring advanced, a good opportunity of seeing how the little auk in great flocks and the black guillemots in smaller numbers, invariably set forth from land at certain times of the day towards the open sea, and then at other times returned in unbroken lines up the ice-bound fjords to their nest-rocks again.

notice of it, thinking it was a fox, busy as usual with some meat up on the roof; and if it did seem to be making rather more noise than we had of late been accustomed to hear from foxes, yet it was scarcely noise enough to come from a bear. We did not take into consideration that the snow was not so cold and crackling now as it had been earlier in the winter. When Johansen went out to read the thermometer, he saw that it was a bear that had been there. It had gone round the hut, but had evidently not liked all the bears' carcases, and had not ventured past them up to the walrus blubber on the roof. At the opening of the passage and the chimney it had sniffed hard, doubtless enjoying the delicious scent of burnt blubber and live human flesh. Then it had dragged a walrus-hide, that was lying outside, a little way off, and scraped the blubber off it. It had come from the ice obliquely up the hill following the scent, had then followed our footsteps from the hut to the place where we get salt water, and had thence gone farther out over the ice until it had got scent of the walrus-carcases out there, and was going towards them when Johansen caught sight of it. There it set to work to gnaw. As my gun was not fit to use at the moment, I took Johansen's and went alone. The bear was so busy gnawing and tearing pieces off the carcase that I could get close up to it from behind without troubling about cover. Wishing to try how near I could get, I went on, and it was not until I was

so near that I could almost touch it with the muzzle of my gun that it heard my steps, so busy had it been. It started round, gazed defiantly and astonished at me, and I saluted it with a charge right in its face. It threw up its head, sneezed, and blew blood out over the snow, as it turned round again and galloped away. I was going to load again, but the cartridge jammed, and it was only by using my knife that I got it out. While I was doing this, the bear had bethought himself, stopped, turned towards me, and snorted angrily, as he made up his mind to set upon me. He then went up on to a piece of ice close by, placed himself in an attitude of defence, and stretched out his neck towards me, while the blood poured from his mouth and nostrils. The ball had gone right through his head, but without touching the brain. At last I had put another cartridge in, but had to give him five shots before I finally killed him. At each shot he fell, but got up again. I was not accustomed to the sights on Johansen's gun, and shot rather too high with it. At last I grew angry, rushed up to him, and finished him off."

We were beginning to be well supplied with blubber and meat for the journey south, and were now busy fitting ourselves out. And there was a great deal to be done. We had to begin to make ourselves new clothes out of our blankets; our wind-clothes had to be patched and mended; our "komager" had to be soled, and we had to make socks and gloves out of

bear-skin. Then we had to make a light, good sleeping-bag of bear-skin. All this would take time; and from this time we worked industriously at our needle from early morning till late at night. Our hut was suddenly transformed into a busy tailor's and shoemaker's work-room, where we sat side by side in the sleeping-bag upon the stone-bed, and sewed and sewed and thought about the home-coming. We got thread by unravelling the cotton canvas of some provision bags. It need hardly be said that we were always talking about the prospects for our journey, and we found great comfort in the persistence of the dark sky in the south-west, which indicated much open water in that direction. I consequently thought we should have good use for our kayaks on the journey to Spitzbergen. I mention this open water several times in my journal. For instance, on April 12th: "open water from the promontory in the south-west, northwards as far as we can see." By this I mean, of course, that there was dark air over the whole horizon in this direction, showing clearly that there was open water there. This could not really surprise us; indeed, we ought to have been prepared for it, since Payer had found open water in the middle of April at a more northerly point on the west coast of Crown-Prince Rudolf Land; and this had been continually in my thoughts all through the winter.

Another thing which made us believe in the close

vicinity of the sea, was that we were daily visited by ivory gulls and fulmars (*Procelaria glacialis*), sometimes skuas also. We saw the first ivory gulls on March 12th; throughout April they became more and more numerous, and soon we had plenty both of them and of the burgomasters (*Larus glaucus*) sitting on our roof and round the hut, and drumming and pecking at the bones and remains of bears they found there. During the winter the continual gnawing of the foxes at the meat up there, had entertained us and reminded us that we were not quite forsaken by living things; when half asleep we could often imagine that we were in our beds at home, and heard the rats and mice holding their revels in the attic above us. With the coming of daylight, the foxes vanished. They now found plenty of little auks up in the clefts of the mountains and had no longer to depend on our stone-hard frozen bear-meat. But now we had the drumming of the gulls instead; but they did not call up the same illusions, and, when we had them on the roof just over our heads, were often very tiresome, and even disturbed our sleep, so that we had to knock on the roof, or go out and frighten them away, which, however, had the desired effect only for a few minutes.

On the 18th of April, while I was at work on some solar time observations, I happened to look up, and was surprised to see a bear standing just opposite to me down on the ice by the shore. It must have been standing there a long time, wondering what I was about.

I ran to the hut for a gun; but when I returned it took to its heels, and I was not eager to follow it.

"Sunday, April 19th. I was awakened at 7 o'clock this morning by the heavy steps of a bear outside. I wakened Johansen, who struck a light, and I got on my trousers and 'komager' and crept out with loaded gun. During the night a great deal of snow had, as usual, drifted over the skin that covered the opening, and was difficult to break through. At last by kicking with all my might from below, I managed to knock the snow off, and put my head out into the daylight, which was quite dazzling after the darkness down in the hut. I saw nothing, but knew that the bear must be standing just behind the hut. Then I heard a snorting and blowing, and off went the brute in a clumsy bear's-gallop up the slope. I did not know whether to shoot or not, and to tell the truth I had little inclination for bear-skinning in this bitter weather; but half at random, I sent a shot after it, which of course missed, and I was not sorry. I did not shoot again; the one shot was enough to frighten it, and keep it from coming again for the present; we did not want it, if only it would leave our things in peace. At the cleft to the north it looked back, and then went on. As usual it had come against the wind, and must have scented us far west upon the ice. It had made several tacks to leeward to us, had been at the entrance of the hut, where it had left a visiting-card,

and had then gone straight to a mound at the back of us, where there is some walrus blubber, surrounded on all sides by bears' carcases. These had no terrors for it. The bear-skin which covered it, it had dragged a long way, but fortunately it had not succeeded in getting anything eaten before I came."

"Sunday, May 3rd. When Johansen came in this morning, he said he had seen a bear out on the ice; it was coming in. He went out a little later to look for it, but did not see it; it had probably gone into the bay to the north. We expected a visit from it, however, as the wind was that way; and as we sat later in the day, sewing as hard as we could sew, we heard heavy footsteps on the snow outside. They stopped, went backwards and forwards a little, and then something was drawn along, and all was quiet. Johansen crept cautiously out with his gun. When he put his head out of the hole, and his eyes had recovered from the first dazzling effects of the daylight, he saw the bear standing gnawing at a bear-skin. A bullet through the head killed it on the spot. It was a lean little animal, but worth taking, inasmuch as it saved us the trouble of thawing up carcases, in order to cut provisions for our journey off them. Frozen stiff as they now are, we cannot cut them up outside in the cold, but have to bring them into the hut, and soften them in the warmth, before we can cut anything off them, and this takes time. Two bears were here on a visit last night, but they turned back again at the sledge, which

JOHANSEN SITTING IN THE SLEEPING BAG IN THE HUT.

is stuck up on end in the moraine to the west of us, to serve as a stand for our thermometer."

As we were breakfasting on May 9th, we again heard a bear's footstep outside, and being afraid that it was going to eat up our blubber, we had no other resource than to shoot it. We now had far more meat than we required, and did not care to use more cartridges on these animals for the present; but what grieved us most was the thought of all the beautiful bear-skins which we should leave behind us. The time was now drawing near when we should break up our camp, and we worked eagerly at our preparations. Our clothes were now ready. The entry for Tuesday May 12th, runs thus: "Took leave to-day of my old trousers. I was quite sad at the thought of the good service they had done; but they are now so heavy with oil and dirt that they must be several times their original weight, and, if they were squeezed, oil would ooze out of them." It was undeniably pleasant to put on the new, light, soft trousers of blanket, which were, to some extent, free from grease. As, however, this material was loose in texture, I was afraid it might wear out before we reached Spitzbergen, and we had therefore strengthened it both inside and outside with pieces of an old pair of drawers, and of a shirt, to protect it from wear.

While I was taking some observations outside the hut on Saturday, May 16th, I saw a bear with quite a small

young one out on the ice. I had just taken a turn out there, and they were examining my tracks. The mother went first, going up on to all the hummocks I had been upon, turning round and snuffing, and looking at the tracks, and then descending again, and going on. The tiny young one trotted along behind, exactly repeating the movements of its mother. At last they grew tired of this, and turned their steps towards the shore, disappearing behind the promontory to the north of us. Shortly after Johansen came out, and I told him about it, and said: "I expect we shall soon see them in the cleft up there, as the wind is that way." I had scarcely said it, when, looking across, we saw them both standing, stretching their necks, snuffing and looking at us and the hut. We did not want to shoot them, as we had abundance of food; but we thought it would be amusing to go nearer and watch them, and then, if possible, frighten them sufficiently to keep them from visiting us in the night, so that we could sleep in peace. When we approached, the mother snorted angrily, turned several times as if to go, pushing the young one on first, but turned back again to observe us more closely. At last they jogged slowly off, continually hesitating and looking back. When they got down to the shore, they again went quite slowly among the hummocks, and I ran after them. The mother went first, the young one trotting after exactly in her footsteps. I was soon close to them, the mother saw me, started, and tried to get the young

one to go with her ; but I now discovered that it could run no faster than I could follow it. As soon as the mother saw this, she turned round, snorted and came storming right at me. I halted, and prepared to shoot, in case she should come too near, and in the meantime the little one tramped on as fast as it could. The mother halted at the distance of a few paces from me, snorted and hissed again, looked round at the young one, and when the latter had got a good way on, trotted after it. I ran on again, and overtook the young one, and again the mother went through the same manœuvres ; she seemed to have the greatest possible desire to strike me to the earth, but then the young one had again got ahead a little, and she did not wait to do it but trotted after. This was repeated several times, and then they began to clamber up the glacier, the mother in front, the young one after. But the latter did not get on very fast ; it trudged along as well as it could in its mother's footprints in the deep snow ; it reminded me exactly of a child in trousers, as it clambered up and kept looking round, half frightened, half curious. It was touching to see how incessantly the mother turned round to hasten it on, now and then jogging it with her head, hissing and snorting all the while at me standing quietly below and looking on. When they reached the crest the mother stopped and hissed worse than ever, and when she had let the young one pass her,

they both disappeared over the glacier, and I went back to continue my work.

For the last few weeks a feverish activity had reigned in our hut. We had become more and more impatient to make a start; but there was still a great deal to be done. We realised in bitter earnest that we had no longer the *Fram's* stores to fall back upon. On board the *Fram* there might be one or two things lacking; but here we lacked practically everything. What would we not have given even for a single box of dog-biscuits—for ourselves—out of the *Fram's* abundance? Where were we to find all that we needed? "For a sledge expedition, one must lay in light and nourishing provisions, which at the same time afford as much variety as possible; one must have light and warm clothing, strong and practical sledges," etc., etc.—we knew by heart all these maxims of the Arctic text-book. The journey that lay before us, indeed, was not a very great one; the thing was simply to reach Spitzbergen and get on board the sloop; but it was long enough after all to make it necessary for us to take certain measures of precaution.

When we dug up the stores which we had buried at the beginning of the winter, and opened the bags, we found that there were some miserable remains of a commissariat which had once, indeed, been good, but was now for the most part mouldy and spoilt by the damp of the previous autumn. Our

flour, our precious flour, had got mildewed, and had to be thrown away. The chocolate had been dissolved by the damp, and no longer existed; and the pemmican—well—it had a strange appearance, and when we tasted it—ugh! It too had to be thrown away. There remained a certain quantity of fish-flour, some aleuronate flour, and some damp half-moulded bread, which we carefully boiled in train-oil, partly to dry it, as all damp was expelled by the boiling oil, partly to render it more nutritious by impregnating it with fat. We thought it tasted delightful, and preserved it carefully for festal occasions, and times when all other food failed us. Had we been able to dry bear's flesh, we should have managed very well; but the weather was too raw and cold, and the strips of flesh we hung up became only half dry. There was nothing for it but to lay in a store of as much cut-up raw flesh and blubber as we could carry with us. Then we filled the three tin boxes that had held our petroleum with train-oil, which we used as fuel. For cooking on the journey we would use the pot belonging to our cooking apparatus; and our lamp we used as a brazier in which to burn blubber and train-oil together. These provisions and this fuel did not constitute a particularly light equipment; but it had this advantage that we should probably be able to replace what we consumed of it by the way. It was to be hoped that we should find plenty of game.

Our short sledges were a greater trouble to us, for of

course we could not get them lengthened now. If we failed to find open water all the way over to Spitzbergen, and were compelled to drag them over the uneven drift-ice, we could scarcely imagine how we should get on with the kayaks lying on these short sledges, without getting them knocked to pieces on hummocks and pressure-ridges; for the kayaks were supported only at the middle, while both ends projected far beyond the sledge, and at the slightest inequality these ends hacked against the ice, and scraped holes in the sail-cloth. We had to protect them well by lashing bear-skins under them; and then we had to make the best grips we could contrive out of the scanty wood we had, to fix on the sledges. This was no easy matter, for the great point was to make the grips high in order to raise the kayaks as much as possible, and keep them clear of the ice; and then they had to be well lashed in order to keep their places. But we had no cord to lash them with, and had to make it for ourselves of raw bear-skin or walrus-hide, which is not the best possible material for lashings. This difficulty, too, we overcame, and got our kayaks to lie steadily and well. We of course laid the heaviest part of their cargo as much as possible in the middle, so that the ends should not be broken down by the weight. Our own personal equipment was quite as difficult to get in order. I have mentioned that we made ourselves new clothes, and this took a long time with two such inexpert tailors; but practice made us gradually

more skilful, and I think we had good reason to be proud of the results we finally achieved. When we at last put them on, the clothes had quite an imposing appearance—so we thought at any rate. We saved them up and kept them hanging as long as possible, in order that they might still be new when we started. Johansen, I believe, did not wear his new coat before we fell in with other people. He declared he must keep it fresh till we arrived in Norway ; he could not go about like a pirate when he got among his countrymen again. The poor remains of underclothes that we possessed had of course to be thoroughly washed before we started, so that it should be possible to move in them without their rasping too many holes in our skin. The washing we accomplished as above described. Our foot-gear was in anything but a satisfactory condition. Socks, indeed, we could make of bear-skin ; but the worst of it was that the soles of our "komager" were almost worn out. We managed, however, to make soles of a sort out of walrus hide, by scraping about half its thickness away, and then drying it over the lamp. With these soles we mended our "komager" after the fashion of the Finns ; we had plenty of "senne" thread (sedge thread), and we managed to get our komagers pretty well water-tight again. Thus in spite of everything we were tolerably well off for clothes, though it cannot be said that those we had were remarkable for their cleanliness. To protect us against wind and rain we had still our wind-clothes, which we

had patched and stitched together as well as we could; but it took a terrible time, for the whole garments now consisted of scarcely anything else but patches and seams, and when you had sewn up a hole at one place, they split at another the next time you put them on. The sleeves were particularly bad, and at last I tore both sleeves off my jacket, so that I should not have the annoyance of seeing them perpetually stripped away.

It was very desirable, too, that we should have a tolerably light sleeping-bag. The one we had brought with us no longer existed, as we had made clothes out of the blankets; so the only thing was to try and make as light a bag as possible out of bear-skin. By picking out the thinnest skins we possessed, we managed to make one not so much heavier than the reindeer-skin bag which we had taken with us on leaving the *Fram*. A greater difficulty was to procure a practicable tent. The one we had had was out of the question. It had been worn and torn to pieces on our five months' journey of the year before, and what was left of it the foxes had made an end of, as we had had it lying spread over our meat and blubber heap in the autumn to protect it against the gulls. The foxes had gnawed and torn it in all directions, and had carried off great strips of it which we found scattered around. We speculated a great deal as to how we could make ourselves a new tent. The only thing we could think of was to put our sledges

with the kayaks upon them, parallel to each other at the distance of about a man's height, then pile snow around them at the sides until they were closed in, lay our snow-shoes and bamboo staffs across, and then spread our two sails, laced together, over the whole, so that they should reach the ground on both sides. In this way we managed to make ourselves a quite effective shelter, the kayaks forming the roof ridges, and the sails the side walls of the tent. It was not quite impervious to drifting snow, and we had usually a good deal of trouble in stopping up cracks and openings with our wind-clothes and things of that sort.

But the most important part of our equipment was, after all, our firearms, and these, fortunately, we had kept in tolerably good order. We cleaned the rifles thoroughly and rubbed them with train-oil. We had also a little vaseline and gun-oil left for the locks. On taking stock of our ammunition, we found to our joy that we still had about 100 rifle cartridges and 110 small shot cartridges. We had thus, enough, if necessary, for several more winters.

CHAPTER IX.

The Journey Southwards.

At last, on Tuesday, May 19th, we were ready for the start. Our sledges stood loaded and lashed. The last thing we did was to photograph our hut both outside and inside, and to leave in it a short report of our journey. It ran thus:—

"Tuesday, May 19th, 1896. We were frozen in north of Kotelnoi at about 78° 43′ N. lat., September 22nd, 1893. Drifted north-westward during the following year, as we had expected to do. Johansen and I left the *Fram*, March 14th, 1895, at about 84° 4′ N. lat. and 103° E. long.,* to push on northward. The command of the remainder of the expedition was transferred to Sverdrup. Found no land northwards. On April 6th, 1895, we had to turn back at 86° 14′ N. lat., and about 95° E. long., the ice having become impassable. Shaped our course for Cape Fligely; but our watches having stopped, we did not know our longitude with certainty,

* This was a slip of the pen; it ought to be 102° E. long.

SOUTHWARD. MAY, 1896.

(From a photograph.)

and arrived on August 6th, 1895, at four glacier-covered islands to the north of this line of islands, at about 81° 30′ N. lat., and about 7° E. of this place. Reached this place August 26th, 1895, and thought it safest to winter here. Lived on bears' flesh. Are starting to-day south-westward along the land, intending to cross over to Spitzbergen at the nearest point. We conjecture that we are on Gillies Land.

"Fridtjof Nansen."

This earliest report of our journey was deposited in a brass tube which had formed the cylinder of the air-pump of our "Primus." The tube was closed with a plug of wood and hung by a wire to the roof-tree of the hut.

At length, on Tuesday, the 19th May, we were ready, and at 7 p.m. left our winter lair, and began our journey south. After having had so little exercise all the winter, we were not much disposed for walking, and thought our sledges with the loaded kayaks heavy to pull along. In order not to do too much at first, but make our joints supple before we began to exert ourselves seriously, we walked for only a few hours the first day, and then, well satisfied, pitched our camp. There was such a wonderfully happy feeling in knowing that we were, at last, on the move, and that we were actually going homewards.

The following day (Wednesday, May 20th) we also

did only a short day's march. We were making for the promontory to the south-west of us that we had been looking at all the winter. Judging from the sky, it was on the further side of this headland that we should find open water. We were very eager to see how the land lay ahead

"OUR WINTER LAIR."

of this point. If we were north of Cape Lofley, the land must begin to trend to the south-east. If, on the other hand, the trend of the coast was to the south-west, then this must be a new land further west, and near Gillies Land.

OVER THE ICE TOWARDS THE ISLAND. 24 MAY, 1896.

(Cape McClintock to the left, Cape Fisher to the right.)

(By A. Eiebakke, from a photograph.)

The next day (Thursday, May 21st) we reached this promontory, and pitched our camp there. All through the winter we had called it the Cape of Good Hope, as we expected to find different conditions there, which would facilitate our advance; and our hopes were not to be disappointed. From the crest of the mountain I saw open water not far off to the south, and also two new snow-lands, one large one in front (in the south, 40° W.), and one not much smaller in the west (S. 85° W.). It was completely covered with glacier, and looked like an evenly vaulted shield. I could not see clearly how the coast ran on account of a headland to the southward. But it did not seem to trend to the south-east, so that we could not be near Cape Lofley. We now hoped that we might be able to launch our kayaks the very next day, and that we should then make rapid progress in a south-westerly direction; but in this we were disappointed. The next day there was a snowstorm, and we had to stay where we were. As I lay in the bag in the morning, preparing breakfast, I all at once caught sight of a bear walking quietly past us at a distance of about twenty paces. It looked at us and our kayaks once or twice, but could not quite make out what we were, as the wind was in another direction and it could not get scent of us, so it continued its way. I let it go unharmed; we still had food enough.

On Saturday, May 23rd, the weather was still bad, but we went ahead a little way to examine our road onward.

The point to be found out was whether we ought at once to make for the open water, that lay on the other side of an island to the west, or whether we ought to travel southwards upon the shore ice along the land. We came to a headland consisting of uncommonly marked columnar basalt, which on account of its peculiar form we called the "Castle."* We here saw that the land stretched farther in a southerly direction, and that the open water went the same way, only separated from the land by a belt of shore ice. As the latter appeared to be full of cracks, we decided to go over to the island in the west, and put to sea as quickly as possible. We therefore returned and made all ready. Our preparations consisted first and foremost in carefully caulking the seams of our kayaks by melting stearine over them, and then re-stowing the cargo so as to leave room for us to sit in them. The following day (Sunday, May 24th) we moved on westwards towards the island, and as the wind was easterly, and we were able to employ sails on the sledges, we got on pretty quickly across the flat ice. As we approached the island, however, a storm blew up from the south-west, and after the sledges had upset several times, we were obliged to take down our sails. The sky became overcast, the air grew misty, and we worked our way against the strong wind in towards the land. The thing was

* Jackson's "Cape M'Clintock."

GLACIER—FRANZ JOSEF LAND.

to get to land as quickly as possible, as we might evidently expect bad weather. But now the ice became treacherous. As we approached the land there were a number of cracks in every direction, and these were covered with a layer of snow so that it was difficult to see them. While Johansen was busy lashing the sail and mast securely to the deck of his kayak, so that the wind should not carry them away, I went on ahead as fast as I could to look for a camping-ground, but all of a sudden the ice sank beneath me, and I lay in the water in a broad crack which had been concealed by the snow. I tried to get out again, but with my snowshoes firmly fastened it was not possible to get them through all the rubble of snow and lumps of ice that had fallen into the water on the top of them. In addition to this I was fastened to the sledge by the harness so that I could not turn round. Fortunately, in the act of falling, I had dug my pike-staff into the ice on the opposite side of the crack, and holding myself up by its aid and the one arm that I had got above the edge of the ice, I lay waiting patiently for Johansen to come and pull me out. I was sure he must have seen me fall in, but could not turn enough to look back. When I thought a long time had passed, and I felt the staff giving way and the water creeping further and further up my body, I began to call out, but received no answer. I shouted louder for help, and at last heard a "Hullo!" far behind. After some little time, when the water was up to my chest, and

it would not have been long before I was right under, Johansen came up, and I was pulled out. He had been so occupied with his sledge that he had not noticed that I was in the water until the last time I called. This experience had the effect of making me careful in the future not to go on such deceitful ice with my snowshoes firmly attached. By observing a little more caution, we at length reached the land, and found a camping-place where there was a certain amount of shelter. To our surprise we discovered a number of walruses lying along the shore here, herd upon herd, beside the cracks; but we took no notice of them either, for the present; we thought we still had a sufficient supply of food and blubber to draw upon.

During the succeeding days, the storm raged, and we could not move. The entry for Tuesday, May 26th, is as follows: "We have lain weatherbound yesterday and to-day beneath the glacier cliff on the north side of this island. The snow is so wet that it will be difficult to get anywhere; but it is to be hoped that the open channel outside is not far off, and we shall get on quickly there when once the storm abates. We shall then make up for this long delay." But our stay was to be longer than we thought. On Thursday, May 28th, the journal says: "We were up on the island yesterday, and saw open sea to the south, but are still lying weather-bound as before. I only moved our tent-place a little on account of the cracks; the ice threatened to open just beneath

WALRUSES.

us. There are a great many walruses here. When we go out over the ice, the fellows follow us and come up in the cracks beside us. We can often hear them grunting as they go, and butting at the ice under our feet."

That day, however, the storm so far abated that we were able to move southwards along the east side of the island. On the way we passed a large open pool in the shore ice between this island and the land. It must have been shallow here, for there was a strong current, which was probably the cause of this pool being kept open. We passed two or three herds of walruses lying on the ice near it. Concerning these, I wrote that evening: "I went up to one herd of about nine to take photographs of the animals. I went close up to them behind a little mound, and they did not see me; but directly I rose up not more than 20 feet away from them a female with her young one plunged into the water through a hole close by. I could not get the others to stir, however much I shouted. Johansen now joined me, and, although he threw lumps of snow and ice at them, they would not move; they only struck their tusks into the lumps, and snuffed at them, while I kept on photographing them. When I went right up to them, most of them at last got up and floundered away towards the hole, and one plunged in; but the others stopped and composed themselves to sleep again. Soon, too, the one that had first disappeared came back and crept on to the ice. The two that lay nearest to me never

stirred at all; they raised their heads a little once or twice, looked contemptuously at me as I stood three paces from them, laid their heads down and went to sleep again. They barely moved when I pricked them in the snout with my pike-staff, but I was able to get a pretty good photograph of them. I thought I now had enough, but before I went I gave the nearest one a parting poke in the snout with my pike-staff; it got right up, grunted discontentedly, looked in astonishment at me with its great round eyes, and then quietly began to scratch the back of its head, and I got another photograph, whereupon it again lay quietly down. When we went on, they all immediately settled themselves again, and were lying like immovable masses of flesh when we finally rounded the promontory, and lost sight of them."

Once more we had snow-storms, and now lay weather-bound on the south side of the island.

"Friday, May 29th. Lying weather-bound.

"Saturday, May 30th. Lying weather-bound, stopping up the tent against the driving snow, while the wind flits round us, attacking first one side and then another." It was all we could do to keep ourselves tolerably dry during this time, with the snow drifting in through the cracks on all sides, on us and our bag, melting and saturating everything.

"Monday, June 1st. Yesterday it at last grew a little calmer, and cleared up so that we had bright sunshine in

the evening. We rejoiced in the thought of moving on, got our kayaks and everything ready to launch, and crept into our bag to turn out early this morning for a fine day, as we thought. The only thing that made it a little doubtful was, that the barometer had ceased rising, had fallen again 1 millim., in fact. In the night the storm came on again,—the same driving snow, only with this difference, that now the wind is going round the compass *with* the sun, so there must soon be an end of it. This is beginning to be too much of a good thing; I am now seriously afraid that the *Fram* will get home before us. I went for a walk inland yesterday. There were flat clay and gravel stretches everywhere. I saw numerous traces of geese, and in one place some white egg-shell, undoubtedly belonging to a goose's egg." We therefore called the island Goose Island.*

"Tuesday, June 2nd. Still lay weather-bound last night, and to-day it has been windier than ever. But now, towards evening, it has begun to abate a little, with a brightening sky, and sunshine now and again, so we hope that there will really be a change for the better. Here we lie in a hollow in the snow, getting wetter and wetter, and thinking that it is June already, and everything looks beautiful at home, while we have got no farther than this. But it cannot be much

* Jackson, who saw it in the spring of 1895, called it Mary Elizabeth Island.

longer before we are there. Oh, it is too much to think of! If only I could be sure about the *Fram!* If she arrives before us, ah, what will those poor waiting ones do!"

At length on Wednesday, June 3rd, we went on, but now the west wind had driven the ice landwards, so that there was no longer open sea to travel south upon, and there was nothing for it but to go over the ice along the land. However the wind was from the north and we could put up a sail on our sledges, and thus get along pretty fast. We still saw several walruses on the ice, and there were also some in the water that were continually putting their heads up in the cracks and grunting after us. The ice we were crossing here was remarkably thin and bad, and as we got farther south it became even worse. It was so weighed down with the masses of snow that lay upon it, that there was water beneath the snow wherever we turned. We had to make towards land as quickly as possible, as it looked still worse farther south. By going on snow-shoes, however, we kept fairly well on the top of the snow, though often both sledge and snow-shoes sank down into the water below, and stuck fast; and no little trouble would be spent in getting everything safely on to firmer ice again. At last, however, we got in under a high, perpendicular basaltic cliff,* which swarmed

* Jackson's "Cape Fisher."

A CAMP ON THE COAST OF FRANZ JOSEF LAND.

with auks. This was the first time we had seen these birds in any great quantity; hitherto we had only seen one or two singly. We took it as a sign that we were approaching better known regions. Alongside of it, to the south-east, there was a small rocky knoll, where numbers of fulmar (*Procelaria glacialis*) seemed to be breeding. Our supply of food was now getting very low, and we had been hoping for a visit from some bear or other; but now that we needed them, they of course kept away. We then determined to shoot birds, but the auks flew too high, and all we got was a couple of fulmars. As we just then passed a herd of walruses, we determined to take some of this despised food, and we shot one of them, killing it on the spot. At the report the others raised their heads a little, but only to let them fall again, and went on sleeping. To get our prize skinned with these brutes lying round us was not to be thought of, and we must drive them into the water in some way or other. This was no easy matter, however. We went up to them, shouted and hallooed, but they only looked at us lazily, and did not move. Then we hit them with snowshoe-staves; they became angry, and struck their tusks into the ice until the chips flew, but still would not move. At last, however, by continuing to poke and beat, we drove the whole herd into the water, but it was not quick work. In stately, dignified procession they drew back, and shambled slowly off, one after

the other, to the water's edge. Here they again looked round at us, grunted discontentedly, and then plunged into the water one by one. But while we were cutting up their comrade, they kept coming up again in the crack beside us, grunting and creeping half up on to the ice, as if to demand an explanation of our conduct.

After having supplied ourselves with as much meat and blubber as we thought we needed for the moment, as well as a quantity of blood, we pitched our tent close by and boiled a good mess of blood-porridge, which consisted of a wonderful mixture of blood, powdered fish, Indian meal, and blubber. We still had a good wind, and sailed away merrily with our sledges all night. When we got to the promontory to the south of us, we came to open water, which here ran right up to the edge of the glacier-covered land; and all we had to do was to launch our kayaks, and set off along by the glacier cliff, in open sea for the first time this year. It was strange to be using paddles again, and to see the water swarming with birds, auks, and little auks and kittiwakes all round. The land was covered with glacier, the basaltic rock only projecting in one or two places. There were moraines, too, in several places on the glaciers. We were not a little surprised, after going some way, when we discovered a flock of eider-ducks on the water. A little later we saw two geese sitting on the shore, and felt as if we had come into quite civilised regions again. After a couple of hours' paddling

our progress south was stopped by shore-ice, while the open water extended due west towards some land we had previously seen in that direction, but which was now covered by mist. We were very much in doubt as to which way to choose, whether to go on in the open water westwards—which must take us towards Spitzbergen—or to leave it and again take to our sledges over the smooth shore-ice to the south. Although the air was thick, and we could not see far, we felt convinced that by going over the ice, we should at last reach open water on the south side of these islands among which we were. Perhaps we might there find a shorter route to Spitzbergen. In the meantime morning was far advanced (June 5th), and we pitched our camp well-pleased at having got so far south.*

As it was still so hazy the following day (Saturday, June 6th) that we could not see any more of our surroundings than before, and as there was a strong north wind, which would be inconvenient in crossing the open sea westwards, we determined on going southwards over the shore-ice. We were once more able to use a sail on our sledges, and we got on better than ever. We often went along without any exertion ; we could stand on our snow-shoes, each in front of our sledge,

* This was on the south side of Jackson's "Cape Richthofen," the most northerly point which Jackson had reached earlier the same spring.

holding the steering-pole (a bamboo cane bound firmly to the stem of the kayaks), and letting the wind carry us along. In the gusts we often went along like feathers, at other times we had to pull a little ourselves. We made good progress, and kept on until far on into the night, as we wanted to make as much use of the wind as possible. We crossed right over the broad sound we had had in front of us, and did not stop until we were able to pitch our camp by an island on its southern side.

Next evening (Sunday, June 7th) we went on again still southwards before the same northerly wind, and we could sail well. We had hoped to be able to reach the land before we again pitched our camp, but it was further than we had thought, and at last when morning (Monday, June 8th) was far advanced, we had to stop in the middle of the ice in a furious storm. The numerous islands among which we now were, seemed more and more mysterious to us. I find in my journal for that day: "Are continually discovering new islands or lands to the south. There is one great land of snow beyond us in the west, and it seems to extend southwards a long way." This snow-land seemed to us extremely mysterious; we had not yet discovered a single dark patch upon it, only snow and ice everywhere. We had no clear idea of its extent, as we had only caught glimpses of it now and then, when the mist lifted a little. It seemed to be quite low, but we thought that it must be of a wider extent than any of

A SAIL WITH SLEDGES. SOUTH OF CAPE RICHTHOFEN. 6 JUNE, 1896.

(By A. Eiebakke, from a photograph.)

the lands we had hitherto travelled along. To the east we found island upon island, and sounds and fjords the whole way along. We mapped it all as well as we could, but this did not help us to find out where we were; they seemed to be only a crowd of small islands, and, every now and then, a view of what we took to be the ocean to the east, opened up between them.

The ice over which we were now travelling was remarkably different from that which we had had farther north, near our winter-hut; it was considerably thinner, and covered, too, with very thick snow, so that it was not in a good condition for travelling over. When, therefore, the following day (Tuesday, June 9th) it also began to stick in lumps to our snowshoes and the sledge-runners, they both worked rather heavily; but the wind was still favourable, and we sailed along well notwithstanding. As we were sailing full speed, flying before the wind, and had almost reached the land, Johansen and his sledge suddenly sank down, and it was with difficulty that he managed to back himself and his things against the wind and on to the firmer ice. As I was rushing along, I saw that the snow in front of me had a suspiciously wet colour, and my snowshoes began to cut through; but fortunately I still had time to luff before any further misfortune occurred. We had to take down our sails, and make a long detour westwards, before we could continue our sail. Next day, also, the snow clogged, but the wind had freshened, and we sailed better than ever.

As the land to the east* now appeared to trend to the south-east, we steered for the southernmost point of a land to the south-west.† It began to be more and more exciting. We thought we must have covered about 14 miles that day, and reckoned that we must be in 80° 8′ N. lat., and we still had land in the south. If it continued far in that direction, it was certain that we could not be on Franz Josef Land (as I still thought might be the case); but we could not see far in this hazy atmosphere, and then it was remarkable that the coast on the east began to run in an easterly direction. I thought it might agree with Leigh-Smith's map of Markham Sound. In that case we must have come south through a sound which neither he nor Payer could have seen, and we were therefore not so far out of our longitude after all. But no! in our journey southward we could not possibly have passed right across Payer's Dove Glacier and his various islands and lands without having seen them. There must still be a land farther west of this between Franz Josef Land and Spitzbergen; Payer's map could not be altogether wrong. I wanted to reach the land in the south-west, but had to stop on the ice; it was too far.

"Our provisions are getting low; we have a little meat for one more day, but there is no living thing to be

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* It proved afterwards to be "Hooker Island."

† It proved to be "Northbrook Island."

seen, not a seal on the ice, and no open water anywhere. How long is this going on? If we do not soon reach open sea again, where there may be game to be had, things will not look very pleasant."

"Tuesday, June 16th. The last few days have been so eventful that there has been no time to write. I must try to make up for lost time this beautiful morning, while the sun is peeping in under the tent. The sea lies blue and shining outside, and one can lie and fancy oneself at home on a June morning."

On Friday, June 12th, we started again at 4 a.m. with sails on our sledges. There had been frost, so the snow was in much better condition again. It had been very windy in the night, too, so we hoped for a good day. On the preceding day it had cleared up so that we could at last see distinctly the lands around. We now discovered that we must steer in a more westerly direction than we had done during the preceding days, in order to reach the south point of the land to the west. The lands to the east disappeared eastwards, so we had said good-bye to them the day before. We now saw, too, that there was a broad sound in the land to the west,* and that it was one entire land, as we had taken it to be. The land north of this sound was now so far away, that

* The sound between Northbrook Island and Bruce Island on the one side and Peter Head on Alexandra Land on the other side.

I could only just see it. In the meantime the wind had dropped a good deal; the ice, too, became more and more uneven—it was evident that we had come to the drift-ice, and it was much harder work than we had expected. We could see by the air that there must be open water to the south, and as we went on, we heard, to our joy, the sound of breakers. At 6 a.m. we stopped to rest a little, and on going up on to a hummock to take a longitude observation I saw the water not far off. From a higher piece of glacier ice we could see it better. It extended towards the promontory to the south-west. Even though the wind had become a little westerly now, we still hoped to be able to sail along the edge of the ice, and determined to go to the water by the shortest way. We were quickly at the edge of the ice, and once more saw the blue water spread out before us. We soon had our kayaks lashed together, and the sail up, and put to sea. Nor were our hopes disappointed; we sailed well all day long. At times the wind was so strong that we cut through the water, and the waves washed unpleasantly over our kayaks; but we got on, and we had to put up with being a little wet. We soon passed the point we had been making for,* and here we saw that the land ran westwards, that the edge of the unbroken shore-ice extended in the same direction, and that we had water in front of us. In good

* Cape Barents.

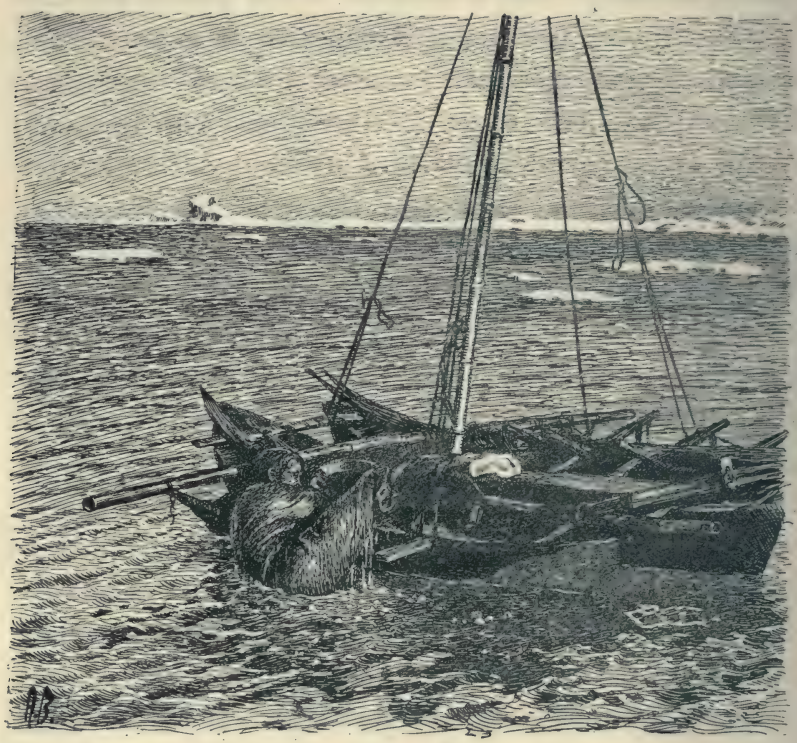
spirits, we sailed westwards along the margin of the ice. So we were at last at the south of the land in which we had been wandering for so long, and where we had spent a long winter. It struck me more than ever that, in spite of everything, this south coast would agree well with Leigh Smith's map of Franz Josef Land and the country surrounding their winter quarters; but then I remembered Payer's map, and dismissed the thought.

In the evening we put in to the edge of the ice, so as to stretch our legs a little; they were stiff with sitting in the kayak all day, and we wanted to get a little view over the water to the west, by ascending a hummock. As we went ashore the question arose as to how we should moor our precious vessel. "Take one of the braces," said Johansen; he was standing on the ice. "But is it strong enough?" "Yes," he answered; "I have used it as a halyard on my sledge-sail all the time." "Oh, well, it doesn't require much to hold these light kayaks," said I, a little ashamed of having been so timid, and I moored them with the halyard, which was a strap cut from a raw walrus-hide. We had been on the ice a little while, moving up and down close to the kayaks. The wind had dropped considerably, and seemed to be more westerly, making it doubtful whether we could make use of it any longer, and we went up on to a hummock close by to ascertain this better. As we stood there, Johansen suddenly cried: "I say! the kayaks are adrift!" We ran down as hard as we could. They

were already a little way out, and were drifting quickly off; the painter had given way. "Here, take my watch!" I said to Johansen, giving it to him; and as quickly as possible I threw off some clothing, so as to be able to swim more easily: I did not dare to take everything off, as I might so easily get cramp. I sprang into the water, but the wind was off the ice, and the light kayaks, with their high rigging, gave it a good hold. They were already well out, and were drifting rapidly. The water was icy cold, it was hard work swimming with clothes on, and the kayaks drifted farther and farther, often quicker than I could swim. It seemed more than doubtful whether I could manage it. But all our hope was drifting there; all we possessed was on board; we had not even a knife with us; and whether I got cramp and sank here, or turned back without the kayaks, it would come to pretty much the same thing; so I exerted myself to the utmost. When I got tired I turned over, and swam on my back, and then I could see Johansen walking restlessly up and down on the ice. Poor lad! He could not stand still, and thought it dreadful not to be able to do anything. He had not much hope that I could do it, but it would not improve matters in the least if he threw himself into the water too. He said afterwards that these were the worst moments he had ever lived through. But when I turned over again, and saw that I was nearer the kayaks, my courage rose, and I redoubled my exertions.

I felt, however, that my limbs were gradually stiffening and losing all feeling, and I knew that in a short time I should not be able to move them. But there was not far to go now; if I could only hold out a little longer, we should be saved—and I went on. The strokes became more and more feeble, but the distance became shorter and shorter, and I began to think I should reach the kayaks. At last I was able to stretch out my hand to the snowshoe, which lay across the sterns; I grasped it, pulled myself in to the edge of the kayak—and we were saved. I tried to pull myself up, but the whole of my body was so stiff with cold, that this was an impossibility. For a moment I thought that after all it was too late; I was to get so far, but not be able to get in. After a little, however, I managed to swing one leg up on to the edge of the sledge which lay on the deck, and in this way managed to tumble up. There I sat, but so stiff with cold, that I had difficulty in paddling. Nor was it easy to paddle in the double vessel, where I first had to take one or two strokes on one side, and then step into the other kayak to take a few strokes on the other side. If I had been able to separate them, and row in one while I towed the other, it would have been easy enough; but I could not undertake that piece of work, for I should have been stiff before it was done; the thing to be done was to keep warm by rowing as hard as I could. The cold had robbed my whole body of feeling, but when the gusts of wind came

they seemed to go right through me as I stood there in my thin, wet woollen shirt. I shivered, my teeth chattered, and I was numb almost all over; but I could still use the paddle, and I should get warm when I got back



"I MANAGED TO SWING ONE LEG UP."

on to the ice again. Two auks were lying close to the bow, and the thought of having auk for supper was too tempting; we were in want of food now. I got hold of my gun, and shot them with one discharge.

Johansen said afterwards that he started at the report, thinking some accident had happened, and could not understand what I was about out there, but when he saw me paddle and pick up two birds he thought I had gone out of my mind. At last I managed to reach the edge of the ice, but the current had driven me a long way from our landing-place. Johansen came along the edge of the ice, jumped into the kayak beside me, and we soon got back to our place. I was undeniably a good deal exhausted, and could barely manage to crawl on land. I could scarcely stand, and while I shook and trembled all over Johansen had to pull off the wet things I had on, put on the few dry ones I still had in reserve, and spread the sleeping-bag out upon the ice. I packed myself well into it, and he covered me with the sail and everything he could find to keep out the cold air. There I lay shivering for a long time, but gradually the warmth began to return to my body. For some time longer, however, my feet had no more feeling in them than icicles, for they had been partly naked in the water. While Johansen put up the tent and prepared supper, consisting of my two auks, I fell asleep. He let me sleep quietly, and when I awoke, supper had been ready for some time, and stood simmering over the fire. Auk and hot soup soon effaced the last traces of my swim. During the night my clothes were hung out to dry, and the next day were all nearly dry again.

As the tidal current was strong here, and there was no wind for sailing, we had to wait for the turn of the tide, so as not to have the current against us; and it was not until late the following evening that we went on again. We paddled and got on well until towards morning (June 14th), when we came to some great herds of walrus on the ice. Our supply of meat was exhausted but for some auks we had shot, and we had not many pieces of blubber left. We would rather have had a bear, but as we had seen none lately, it was perhaps best to supply ourselves here. We put in, and went up to one herd behind a hummock. We preferred young ones, as they were much easier to manipulate; and there were several here. I first shot one quite small, and then another. The full-grown animals started up at the first report, and looked round; and at the second shot the whole herd began to go into the water. The mothers, however, would not leave their dead young ones. One sniffed at its young one, and pushed it, evidently unable to make out what was the matter; it only saw the blood spurting from its head. It cried and wailed like a human being. At last, when the herd began to plunge in, the mother pushed her young one before her towards the water. I now feared that I should lose my booty, and ran forward to save it; but she was too quick for me. She took the young one by one fore-leg, and disappeared with it like lightning into the depths.

The other mother did the same. I hardly knew how it had all happened, and remained standing at the edge looking down after them. I thought the young ones must rise to the surface again, but there was nothing to be seen; they had disappeared for good; the mothers must have taken them a long way. I then went towards another herd, where there were also young ones, and shot one of them; but, made wiser by experience, I shot the mother too. It was a touching sight to see her bend over her dead young one before she was shot, and even in death she lay holding it with one fore-leg. So now we had meat and blubber enough to last a long time, and meat, too, that was delicious, for the side of young walrus tastes like loin of mutton. To this we added a dozen auks, so our larder was now well furnished with good food; and if we needed more, the water was full of auks and other food, so there was no dearth.

The walruses here were innumerable. The herds that had been lying on the ice, and had now disappeared, were large; but there had been many more in the water outside. It seemed to seethe with them on every side, great and small; and when I estimate their number to have been at least 300, it is certainly not over the mark.

At 1.30 the next morning (Monday, June 15th) we proceeded on our way in beautifully calm weather. As walruses swarmed on all sides, we did not much like paddling singly, and for some distance lashed

the kayaks together; for we knew how obtrusive these gentlemen could be. The day before they had come pretty near, popped up close beside my kayak, and several times followed us closely a long distance, but without doing us any harm. I was inclined to think it was curiosity, and that they were not really dangerous; but Johansen was not so sure of this. He thought we had had experience to the contrary, and urged that at any rate caution could do no harm. All day long we saw herds, that often followed us a long way, pressing in round the kayaks. We kept close to the edge of the ice; and if any came too near, we put in, if possible, on an ice-foot.* We also kept close together or beside one another. We paddled past one large herd on the ice, and could hear them a long way off lowing like cows.

We glided quickly on along the coast, but unfortunately a mist hung over it, so that it was often impossible to determine whether they were channels or glaciers between the dark patches which we could just distinguish upon it. I wanted very much to have seen a little more of this land. My suspicion that we were in the neighbourhood of the Leigh Smith winter quarters had become

* The ice-foot is the part of a floe which often projects into the water under the surface. It is formed through the thawing of the upper part of the ice in the summer-time by the warmer surface layer of the sea.

stronger than ever. Our latitude, as also the direction of the coast-line and the situation of the islands and sounds, seemed to agree far too well to admit of the possibility of imagining that another such group of islands could lie in the short distance between Franz Josef Land and Spitzbergen. Such a coincidence would be altogether too remarkable. Moreover, we caught glimpses of land in the far west which in that case could not lie far from North-East Land. But Payer's map of the land north of this? Johansen maintained with reason that Payer could not possibly have made such mistakes as we should in that case be obliged to assume.

"Towards morning we rowed for some time without seeing any walrus, and now felt more secure. Just then we saw a solitary rover pop up a little in front of us. Johansen, who was in front at the time, put in to a sunken ledge of ice; and although I really thought that this was caution carried to excess, I was on the point of following his example. I had not got so far, however, when suddenly the walrus shot up beside me, threw itself on to the edge of the kayak, took hold farther over the deck with one fore-flipper, and as it tried to upset me aimed a blow at the kayak with its tusks. I held on as tightly as possible, so as not to be upset into the water, and struck at the animal's head with the paddle as hard as I could. It took hold of the kayak once more, and tilted me up, so that the deck was almost under water, then let go, and raised itself right up. I seized my gun, but at

the same moment it turned round and disappeared as quickly as it had come. The whole thing had happened in a moment, and I was just going to remark to Johansen that we were fortunate in escaping so easily from that adventure, when I noticed that my legs were wet. I listened, and now heard the water trickling into the

IT TRIED TO UPSET ME."

kayak under me. To turn and run her in on to the sunken ledge of ice was the work of a moment, but I sank there. The thing was to get out and on to the ice, the kayak all the time getting fuller. The edge of the ice was high and loose, but I managed to get up; and Johansen, by tilting the sinking kayak over

to starboard, so that the leak came above the water, managed to bring her to a place where the ice was low enough to admit of our drawing her up. All I possessed was floating about inside, soaked through. What I most regret is that the water has got into the photographic apparatus, and perhaps my precious photographs are ruined.

"So here we lie, with all our worldly goods spread out to dry and a kayak that must be mended before we can face the walrus again. It is a good big rent that he has made, at least six inches long; but it is fortunate that it was no worse. How easily he might have wounded me in the thigh with that tusk of his! And it would have fared ill with me if we had been farther out, and not just at such a convenient place by the edge of the ice, where there was a sunken ledge. The sleeping-bag was soaking wet; we wrung it out as well as we could, turned the hair outside, and have spent a capital night in it."

On the evening of the same day, I wrote: "To-day I have patched my kayak, and we have gone over all the seams in both kayaks with stearine; so now we hope we shall be able to go on in quite sound boats. In the meantime the walruses are lying outside, staring at us with their great, round eyes, grunting and blowing, and now and then clambering up on the edge of the ice, as though they wanted to drive us away."

"Tuesday, June 23rd.

"'Do I sleep? do I dream?
Do I wonder and doubt?
Are things what they seem?
Or is visions about?'

What has happened? I can still scarcely grasp it. How incessant are the vicissitudes in this wandering life! A few days ago swimming in the water for dear life, attacked by walrus, living the savage life which I have lived for more than a year now, and sure of a long journey before us, over ice and sea, through unknown regions, before we should meet with other human beings—a journey full of the same ups and downs, the same disappointments, that we have become so accustomed to—and now living the life of a civilised European, surrounded by everything that civilisation can afford of luxury and good living, with abundance of water, soap, towels, clean, soft woollen clothes, books, and everything that we have been sighing for all these weary months.

"It was past midday on June 17th when I turned out to prepare breakfast. I had been down to the edge of the ice to fetch salt water, had made up the fire, cut up the meat, and put it in the pot, and had already taken off one boot preparatory to creeping into the bag again, when I saw that the mist over the land had risen a little since the preceding day. I thought it would be as well to take the opportunity of having a look round, so I put on my boot again, and went up on to a hummock

near to look at the land beyond. A gentle breeze came from the land, bearing with it a confused noise of thousands of bird-voices from the mountain there. As I listened to these sounds of life and movement, watched flocks of auks flying to and fro above my head, and as my eye followed the line of coast, stopping at the dark, naked cliffs, glancing at the cold, icy plains and glaciers in a land which I believed to be unseen by any human eye and untrodden by any human foot, reposing in arctic majesty behind its mantle of mist—a sound suddenly reached my ear, so like the barking of a dog, that I started. It was only a couple of barks, but it could not be anything else. I strained my ears, but heard no more, only the same bubbling noise of thousands of birds. I must have been mistaken, after all; it was only birds I had heard; and again my eye passed from sound to island in the west. Then the barking came again, first single barks, then full cry; there was one deep bark, and one sharper; there was no longer any room for doubt. At that moment, I remembered having heard two reports the day before, which I thought sounded like shots, but I had explained them away as noises in the ice. I now shouted to Johansen that I heard dogs farther inland. Johansen started up from the bag where he lay sleeping, and tumbled out of the tent. 'Dogs?' He could not quite take it in, but had to get up and listen with his own ears, while I got breakfast ready. He very

much doubted the possibility of such a thing, yet fancied once or twice that he heard something which might be taken for the barking of dogs; but then it was drowned again in the bird-noises, and, everything considered, he thought that what I had heard was nothing more than that. I said he might believe what he liked, but I meant to set off as quickly as possible, and was impatient to get breakfast swallowed. I had emptied the last of the Indian meal into the soup, feeling sure that we should have farinaceous food enough by the evening. As we were eating we discussed who it could be, whether our countrymen or Englishmen. If it was the English expedition to Franz Josef Land which had been in contemplation when we started, what should we do? 'Oh, we'll just have to remain with them a day or two,' said Johansen, 'and then we'll have to go on to Spitzbergen, else it will be too long before we get home.' We were quite agreed on this point; but we would take care to get some good provisions for the voyage out of them. While I went on, Johansen was to stay behind and mind the kayaks, so that we should run no risk of their drifting away with the ice. I got out my snowshoes, glass, and gun, and was ready. Before starting, I went up once more to listen, and look out a road across the uneven ice to the land. But there was not a sound like the barking of dogs, only noisy auks, harsh-toned little auks, and screaming kittiwakes. Was it these, after all, that I had heard? I set off in doubt.

Then in front of me I saw the fresh tracks of an animal. They could hardly have been made by a fox, for if they were, the foxes here must be bigger than any I had ever seen. But dogs? Could a dog have been no more than a few hundred paces from us in the night without barking, or without our having heard it? It seemed scarcely probable; but whatever it was, it could never have been a fox. A wolf, then? I went on, my mind full of strange thoughts, hovering between certainty and doubt. Was all our toil, were all our troubles, privations, and sufferings, to end here? It seemed incredible, and yet—— Out of the shadowland of doubt, certainty was at last beginning to dawn. Again the sound of a dog yelping reached my ear, more distinctly than ever; I saw more and more tracks which could be nothing but those of a dog. Among them were foxes' tracks and how small they looked! A long time passed, and nothing was to be heard but the noise of the birds. Again arose doubt as to whether it was all an illusion. Perhaps it was only a dream. But then I remembered the dogs' tracks; they, at any rate, were no delusion. But if there were people here, we could scarcely be on Gillies Land or a new land, as we had believed all the winter. We must after all be upon the south side of Franz Josef Land, and the suspicion I had had a few days ago was correct, namely, that we had come south through an unknown sound and out between Hooker Island and Northbrook Island, and were now

off the latter, in spite of the impossibility of reconciling our position with Payer's map.

"It was with a strange mixture of feelings that I made my way in towards land among the numerous hummocks and inequalities. Suddenly I thought I

FRANZ JOSEF LAND.

heard a shout from a human voice, a strange voice, the first for three years. How my heart beat, and the blood rushed to my brain, as I ran up on to a hummock, and hallooed with all the strength of my lungs.

Behind that one human voice in the midst of the icy desert, this one message from life, stood home and she who was waiting there; and I saw nothing else as I made my way between bergs and ice-ridges. Soon I heard another shout, and saw, too, from an ice-ridge, a dark form moving among the hummocks farther in. It was a dog; but farther off came another figure, and that was a man. Who was it? Was it Jackson or one of his companions, or was it perhaps a fellow-countryman? We approached one another quickly; I waved my hat: he did the same. I heard him speak to the dog, and I listened. It was English, and as I drew nearer I thought I recognised Mr. Jackson, whom I remembered once to have seen.

"I raised my hat; we extended a hand to one another, with a hearty 'How do you do?' Above us a roof of mist, shutting out the world around, beneath our feet the rugged, packed drift-ice, and in the background a glimpse of the land, all ice, glacier, and mist. On one side the civilised European in an English check suit and high rubber water-boots, well shaved, well groomed, bringing with him a perfume of scented soap, perceptible to the wild man's sharpened senses; on the other side the wild man, clad in dirty rags, black with oil and soot, with long, uncombed hair and shaggy beard, black with smoke, with a face in which the natural fair complexion could not possibly be discerned through the thick layer of fat and soot which a winter's endeavours

with warm water, moss, rags, and at last a knife had sought in vain to remove. No one suspected who he was or whence he came.

"Jackson: 'I'm immensely glad to see you.'

"'Thank you, I also.'

"'Have you a ship here?'

"'No; my ship is not here.

"'How many are there of you?'

"'I have one companion at the ice-edge.'

"As we talked, we had begun to go in towards land. I took it for granted that he had recognised me, or at any rate understood who it was that was hidden behind this savage exterior, not thinking that a total stranger would be received so heartily. Suddenly he stopped, looked me full in the face, and said quickly:—

"'Aren't you Nansen?'

"'Yes, I am.'

"'By Jove! I am glad to see you!'

"And he seized my hand and shook it again, while his whole face became one smile of welcome, and delight at the unexpected meeting beamed from his dark eyes.

"'Where have you come from now?' he asked.

"'I left the *Fram* in 84° N. lat., after having drifted for two years, and I reached the 86° 15′ parallel, where we had to turn and make for Franz Josef Land. We were, however, obliged to stop for the winter somewhere north here, and are now on our route to Spitzbergen.'

"'I congratulate you most heartily. You have made a

THE MEETING OF JACKSON AND NANSEN.

good trip of it, and I am awfully glad to be the first person to congratulate you on your return.'

"Once more he seized my hand, and shook it heartily. I could not have been welcomed more warmly; that handshake was more than a mere form. In his hospitable English manner, he said at once that he had 'plenty of room' for us, and that he was expecting his ship every day. By 'plenty of room' I discovered afterwards that he meant that there were still a few square feet on the floor of their hut that were not occupied at night by himself and his sleeping companions. But 'heart-room makes house-room,' and of the former there was no lack. As soon as I could get a word in, I asked how things were getting on at home, and he was able to give me the welcome intelligence that my wife and child had both been in the best of health when he left two years ago. Then came Norway's turn, and Norwegian politics; but he knew nothing about that, and I took it as a sign that they must be all right too. He now asked if we could not go out at once, and fetch Johansen and our belongings; but I thought that our kayaks would be too heavy for us to drag over this packed-up ice alone, and that if he had men enough it would certainly be better to send them out. If we only gave Johansen notice by a salute from our guns, he would wait patiently; so we each fired two shots. We soon met several men: Mr. Armitage, the second in command,

Mr. Child, the photographer, and the doctor, Mr. Koetlitz. As they approached, Jackson gave them a sign, and let them understand who I was; and I was again welcomed heartily. We met yet others: the botanist, Mr. Fisher, Mr. Burgess, and the Finn Blomqvist (his real name was Melenius). Fisher has since told me that he at once thought it must be me when he saw a man out on the ice; but he quite gave up that idea when he met me, for he had seen me described as a fair man, and here was a dark man, with black hair and beard. When they were all there, Jackson said that I had reached 86° 15′ N. lat., and from seven powerful lungs I was given a triple British cheer, that echoed among the hummocks. Jackson immediately sent his men off to fetch sledges and go out to Johansen, while we went on towards the house which I now thought I could see on the shore. Jackson now told me that he had letters for me from home, and that both last spring and this he had had them with him when he went north, on the chance of our meeting. We now found that in March he must have been at no great distance south of our winter-hut,* but had to turn there, as he was stopped by open water, the same open water over which we had seen the dark atmosphere all the winter. Only when we came up nearly to the houses did he inquire more particularly

* He had reached Cape Richthofen, about 35 miles to the south of us.

about the *Fram* and our drifting, and I briefly told him our story. He told me afterwards that from the time we met he had believed that the ship had been destroyed, and that we two were the only survivors of the expedition. He thought he had seen a sad expression in my face when he first asked about the

MR. JACKSON'S STATION AT CAPE FLORA.

ship, and was afraid of touching on the subject again. Indeed, he had even quietly warned his men not to ask. It was only through a chance remark of mine that he found out his mistake, and began to inquire more particularly about the *Fram* and the others.

"Then we arrived at the house, a low Russian timber hut, lying on a flat terrace, an old shore-line, beneath the mountain, and 50 feet above the sea. It was surrounded by a stable and four circular tent-houses, in which stores were kept. We entered a comfortable, warm nest in the midst of these desolate, wintry surroundings, the roof and walls covered with green cloth. On the walls hung photographs, etchings, photo-lithographs, and shelves everywhere, containing books and instruments; under the roof clothes and shoes hung drying, and from the little stove in the middle of the floor of this cosy room the warm coal fire shone out a hospitable welcome. A strange feeling came over me as I seated myself in a comfortable chair in these unwonted surroundings. At one stroke of changing fate, all responsibility, all troubles, were swept away from a mind that had been oppressed by them during three long years; I was in a safe haven, in the midst of the ice, and the longings of three years were lulled in the golden sunshine of the dawning day. My duty was done: my task was ended; now I could rest, only rest and wait.

"A carefully soldered tin packet was handed to me; it contained letters from Norway. It was almost with a trembling hand and a beating heart that I opened it; and there were tidings, only good tidings, from home. A delightful feeling of peace settled upon the soul.

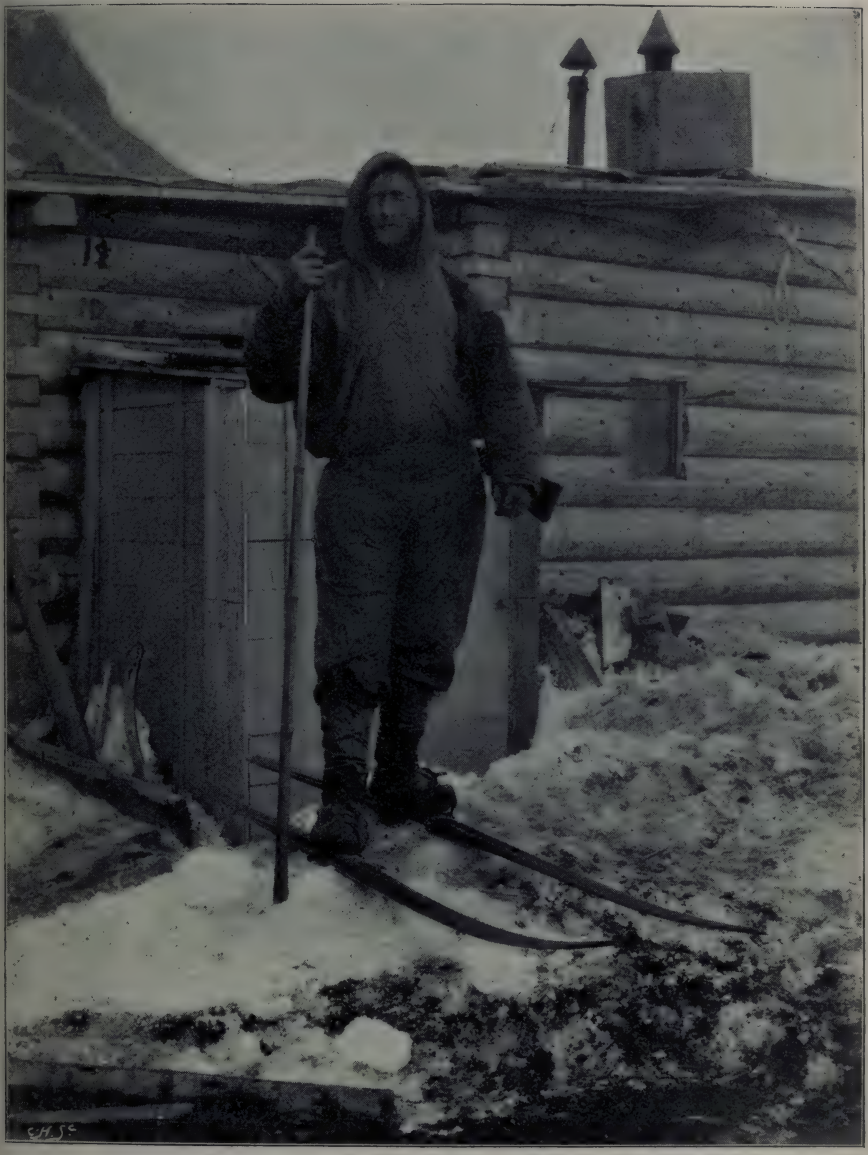
"Then dinner was served, and how nice it was to have bread butter, milk, sugar, coffee, and everything that

PHOTOGRAPH BY MR. JACKSON OF NANSEN AT CAPE FLORA.

a year had taught us to do without and yet to long for. But the height of comfort was reached when we were able to throw off our dirty rags, have a warm bath, and get rid of as much dirt as was possible in one bout; but we only succeeded in becoming anything like clean after several days and many attempts. Then clean, soft clothes from head to foot, hair cut, and the shaggy beard shaved off, and the transformation from savage to European was complete, and even more sudden than in the reverse direction. How delightfully comfortable it was to be able to put on one's clothes without being made greasy, but most of all to be able to move without feeling them stick to the body with every movement.

"It was not very long before Johansen and the others followed, with the kayaks and our things. Johansen related how these warm-hearted Englishmen had given him and the Norwegian flag a hearty cheer when they came up and saw it waving beside a dirty woollen shirt on a bamboo rod which he had put up by my orders, so that I could find my way back to him. On the way hither they had not allowed him to touch the sledges, he had only to walk beside them like a passenger, and he said that, of all the ways in which we had travelled over drift-ice, this was without comparison the most comfortable. His reception in the hut was scarcely less hospitable than mine, and he soon went through the same transformation that I had undergone. I no longer recognise my comrade of the long winter night, and search

in vain for any trace of the tramp who wandered up and down that desolate shore, beneath the steep talus and the dark basalt cliff, outside the low underground hut. The black, sooty troglodyte has vanished, and in his place sits a well-favoured, healthy-looking European citizen in a comfortable chair, puffing away at a short pipe or a cigar, and with a book before him, doing his best to learn English. It seems to me that he gets fatter and fatter every day, with an almost alarming rapidity. It is indeed surprising that we have both gained considerably in weight since we left the *Fram*. When I came here, I myself weighed about 14½ stone, or nearly 22 lbs. more than I did when I left the *Fram*; while Johansen weighs over 11 stone 11 lbs., having gained a little more than 13 lbs. This is the result of a winter's feeding on nothing but bear's meat and fat in an Arctic climate. It is not quite like the experiences of others in parallel circumstances; it must be our laziness that has done it. And here we are, living in peace and quietness, waiting for the ship from home and for what the future will bring us, while everything is being done for us to make us forget a winter's privations. We could not have fallen into better hands, and it is impossible to describe the unequalled hospitality and kindness we meet with on all hands, and the comfort we feel. Is it the year's privations and want of human society, is it common interests, that so draw us to these men in these desolate



PHOTOGRAPH BY MR. JACKSON OF JOHANSEN AT CAPE FLORA.

regions? I do not know; but we are never tired of talking, and it seems as if we had known one another for years, instead of having met for the first time a few days ago."

"Wednesday, June 23rd. It is now three years since

GLACIER, FRANZ JOSEF LAND.

we left home. As we sat at the dinner-table this evening, Hayward, the cook, came rushing in and said there was a bear outside. We went out, Jackson with his camera and I with my rifle. We saw the head of the bear above the edge of the shore; it was sniffing the

air in the direction of the hut, while a couple of dogs stood at a respectful distance and barked. As we approached, it came right up over the edge to us, stopped, showed its teeth, and hissed, then turned round and went slowly back down towards the shore. To hinder it enough for Jackson to get near and photograph it, I sent a bullet into its hind-quarters as it disappeared over the edge. This helped, and a ball in the left shoulder still more. Surrounded by a few dogs, it now made a stand. The dogs grew bolder, and a couple of shots in the muzzle from Jackson's revolver made the bear quite furious. It sprang first at one dog, 'Misère, caught hold of it by the back, and flung it a good way out over the ice, then sprang at the other, seizing it by one paw and tearing one toe badly. It then found an old tin box, bit it flat, and flung it far away. It was wild with fury, but a ball behind the ear ended its sufferings. It was a she-bear, with milk in the breast; but there was no sign of any embryo, and no young one was discovered in the neighbourhood."

"Sunday, July 15th. This evening, when Jackson and the doctor were up on the mountain shooting auks, the dogs began to make a tremendous row (especially the bear-dog 'Nimrod,' which is chained outside the door), and howled and whined in a suspicious manner. Armitage went out, coming back a little while after and asking if I cared to shoot a bear. I accompanied him, with my rifle and camera. The bear had taken flight to a

little hummock out on the ice south of the house, and was lying at full length on the top of it, with 'Misère' and a couple of puppies round it, standing at a little distance and barking persistently. As we approached, it fled over

THE WOUNDED BEAR.

the ice; the range was long, but, nevertheless, we sent a few shots after it, thinking we might perhaps retard its progress. With one of these I was fortunate enough to hit it in the hind-quarters, and it now

fled to a new ice-hill. Here I was able to get nearer to it. It was evidently very much enraged; and when I came under the hummock where it stood, it showed its teeth, and hissed at me, and repeatedly gave signs of wanting to jump down on to the top

Instantaneous] A VISITOR. [*Photograph.*

of me. On these occasions I rapidly got ready my rifle instead of the camera. It scraped away the loose snow from under its feet to get a better footing for the leap which, however, it never took; and I re-exchanged my rifle for my camera. In the meantime, Jackson had arrived, with his camera, on the other side; and when we

had taken all the photographs we wanted, we shot the bear. It was an unusually large she-bear."

One of the first things we did when we came to Mr. Jackson's station was of course to make a close comparison of our watches with his chronometer; and Mr. Armitage was also kind enough to take careful time observations for me. It now appears that we had not been so far out after all. We had put our watches about 26 minutes wrong, making a difference of about $6\frac{1}{2}^{\circ}$ in longitude. A protracted comparison undertaken by Mr. Armitage also showed that the escapement of our watches was very nearly what we had assumed. With the help of this information, I was now enabled to work out our longitude observations pretty correctly; and one of the first tasks I here set about, now that we once more had access to paper, writing- and drawing-materials, and all that we had longed for so much during the winter, was to prepare a sketch-map of Franz Josef Land, as our observations led me to conclude that it must actually be. Mr. Jackson very kindly allowed me to consult the map he had made of that part of the land which he had explored. This enabled me to dispense with the labour of reckoning out my own observations in these localities. Furthermore, I have to thank Mr. Jackson for aid in every possible way, with navigation-tables, Nautical Almanack,* scales, and all sorts of drawing material.

* We had not any Nautical Almanack for 1896, and had hitherto used the almanack for the previous year.

It is by a comparison of Payer's map, Jackson's map, and my own observations, that I have made out the sketch-map here reproduced. I have altered Payer's and Jackson's map only at places where my observations differ essentially from theirs. I make no pretence to give more than a provisional sketch ; I had not even time to work out my own observations with absolute accuracy. When this has been done, and if I can gain access to all Payer's material, no doubt a considerably more trustworthy map can be produced. The only importance which I claim for the accompanying map is that it shows roughly how what we have hitherto called Franz Josef Land is cut up into innumerable small islands, without any continuous and extensive mass of land. Much of Payer's map I found to coincide well enough with our observations. But the enigma over which we had pondered the whole winter still remained unsolved. Where were Dove Glacier and the whole northern part of Wilczek Land? Where were the islands which Payer had named Braun Island, Hoffmann Island, and Freeden Island? The last might, no doubt, be identified with the southernmost island of Hvidtenland (White Land), but the others had completely disappeared. I pondered for a long time over the question how such a mistake could have crept into a map by such a man as Payer—an experienced topographer, whose maps, as a rule, bear the stamp of great accuracy and care, and a Polar

MR. JACKSON AT CAPE FLORA.

traveller for whose ability I have always entertained a high respect. I examined his account of his voyage, and there I found that he expressly mentions that during the time he was coasting along this Dove Glacier he had a great deal of fog, which quite concealed the land ahead. But one day (it was April 7th, 1874) he says* : "At this latitude (81° 23′) it seemed as if Wilczek Land suddenly terminated, but when the sun scattered the driving mists we saw the glittering ranges of its enormous glaciers—the Dove Glaciers—shining down on us. Towards the north-east we could trace land trending to a cape lying in the grey distance : Cape Buda-Pesth, as it was afterwards called. The prospect thus opened to us of a vast glacier land conflicted with the general impression we had formed of the resemblance between the newly discovered region and Spitzbergen ; for glaciers of such extraordinary magnitude presuppose the existence of a country stretching far into the interior."

I have often thought over this description, and I cannot find in Payer's book any other information that throws light upon the mystery. Although, according to this, it would appear as if they had had clear weather that day, there must, nevertheless, have been fog-banks lying over Hvidtenland, uniting it with Wilczek Land to the south and stretching northwards towards Crown-Prince Rudolf Land. The sun shining on these fog-banks

* *New Lands within the Arctic Circle.* By J. Payer, Vol. II, p. 129.

must have glittered so that they were taken for glaciers along a continuous coast. I can all the more easily understand this mistake as I was myself on the point of falling into it. As before related, if the weather had not cleared on the evening of June 11th, enabling us to discern the sound between Northbrook Island and Peter Head (Alexandra Land), we should have remained under the impression that we had here continuous land, and should have represented it as such in mapping this region.

Mr. Jackson and I frequently discussed the naming of the lands we had explored. I asked him whether he would object to my naming the land on which I had wintered "Frederick Jackson's Island," as a small token of our gratitude for the hospitality he had shown us. We had made the discovery that this island was separated by sounds from the land farther north, which Payer had named Karl Alexander Land. For the rest, I refrained from giving names to any of the places which Jackson had seen before I saw them.

The country around Cape Flora proved to be very interesting from the geological point of view, and as often as time permitted I investigated its structure, either alone, or more frequently in company with the doctor and geologist of the English expedition, Dr. Koetlitz. Many an interesting excursion did we make together up and down those steep moraines in search of fossils, which in certain places we found in great numbers. It appeared that from the sea-level up to a height of

about 500 or 600 feet the land consisted of a soft clay mixed with lumps of a red-brown clay sandstone, in which lumps the fossils chiefly abounded. But the earth was so overstrewn with loose stones which had rolled down from the basalt walls above, that it was difficult to reach it. For a long time I maintained that all this clay was only a comparatively late strand formation; but the doctor was indefatigable in his efforts to convince me that it really was an old and very extensive formation, stretching right under the superimposed basalt. At last I had to yield, when we arrived at the topmost stratum of the clay, and I saw it actually going under the basalt, and found some shallower strata of basalt lower down in the clay. An examination of the fossils, which consisted for the most part of ammonites and belemnites, convinced me that the whole of this clay formation must date from the Jurassic period. At several places Dr. Koetlitz had found thin strata of coal in the clay. Petrified wood was also of common occurrence. But over the clay formation lay a mighty bed of basalt 600 or 700 feet in height, which was certainly not the least interesting feature of the country. It was distinguished by its coarse-grained structure from the majority of typical basalts, and seemed to be closely related to those which are found in Spitzbergen and North-East Land.* The basalt, however, seems to vary

* Where they are generally called diabases.

a good deal in appearance here in Franz Josef Land. That which we found further north—for example, at Cape M'Clintock and on Goose Island—was considerably more coarse-grained than that which we found here. The situation of the basalt here on Northbrook Island

BASALTIC ROCK.

and the surrounding islands was also very different from that which we had observed farther north. It is here met with, as a rule, only at a height of 500 or 600 feet above the sea, while on the more northerly islands—from 81° northwards—it reached

right to the shore. Thus it dropped in an almost perpendicular wall straight into the sea at Jackson's Cape Fisher, in 81°. It was the same at Cape M'Clintock, at our winter cabin, at the headland of columnar basalt where we passed the night of August 25th, 1895, at Cape Clements Markham, and at the sharp point of rock where we landed on the night between August 16th and 17th. The structure seemed to be similar, too, so far as we had seen, on the south side of Crown-Prince Rudolf s Land. Wherever we had been to the northward I had kept a sharp look-out for strata whose fossils could give us any information as to the geological age of this country. According to what I here found at Cape Flora, it appeared as if a great part, at least, of this basalt dated from the Jurassic period, as it lay immediately above, and was partly intermixed with, strata of this age. Moreover, on the top of the basalt, as will presently appear, vegetable fossils were found dating from the later part of the Jurassic period. It thus seems as though Franz Josef Land were of a comparatively old formation. All these horizontal strata of basalt, stretching over all the islands at about the same height, seem to indicate that there was once a continuous mass of land here, which in the course of time, being exposed to various disintegrating forces such as frost, damp, snow, glaciers, and the sea, has been split up and worn away, and has in part disappeared under the sea, so that now only scattered islands and rocks remain, separated from each other by fjords and

sounds. As these formations bear a certain resemblance to what has been found in several places in Spitzbergen and North-East Land, we may plausibly assume that these two groups of islands originally belonged to the same mass of land. It would, therefore, be interesting to investigate the as yet unknown region which separates them, the region which we should have had to traverse had we not fallen in with Jackson and his expedition. There is doubtless much that is new, and especially many new islands, to be found in this strait—possibly a continuous series of islands, so that there may be some difficulty in determining where the one archipelago ends and the other begins. The investigation of this region is a problem of no small scientific importance, which we may hope that the Jackson-Harmsworth Expedition will succeed in solving.

How far the Franz Josef Land archipelago stretches towards the north cannot as yet be determined with certainty. According to our experience, indeed, it would seem improbable that there is land of any great extent in that direction. It is true that Payer, when he was upon Crown-Prince Rudolf's Land, saw Petermann's Land and Oscar's Land, the first to the north and the second to the west; but that Petermann's Land, at any rate, cannot be of any size, seems to be proved by our observations, since we saw no land at all as we came southwards a good way east of it, and the ice seemed to drift to the westward practically unimpeded when

we were in its latitude. That King Oscar's Land also cannot be of any great extent seems to me evident from what we saw in the course of the winter and spring, as the wind swept the ice unhindered away from the land, so that there can scarcely be any extensive and continuous mass of land to the north or north-west to keep it back.

It is, perhaps, even more difficult to determine how far the Franz Josef Land archipelago stretches to the eastward. From all we saw, I should judge that Wilczek Land cannot be of any great extent; but there may nevertheless be new islands further to the east. This seems probable, indeed, from the fact that in June and July, 1895, we remained almost motionless at about 82° 5′ N. lat., in spite of a long continuance of northerly winds; whence it seemed that there must be a stretch of land south of us obstructing, like a long wall, the further drift of the ice to the southward. But it is useless to discuss this question minutely here, as it, too, will doubtless be answered authoritatively by the English expedition.

Another feature of Northbrook Island which greatly interested me was the evidence it presented of changes in the level of the sea. I have already mentioned that Jackson's hut lay on an old strand-line or terrace about from 40 to 50 feet high, but there were also several other strand-lines, both lower and higher. Thus I found that Leigh Smith, who also had wintered on this headland,

had built his hut upon an old strand-line 17 feet above the sea-level, while at other places I found strand-lines at a height of 80 feet. I had already noticed such strand-lines at different elevations when I first arrived in the previous autumn at the more northern part of this region (for example, on Torup's Island). Indeed we had lived all the winter on such a terrace.

Jackson had found whales' skeletons at several places about Cape Flora. Close to his hut, for instance, at a height of 50 feet, there laid the skull of a whale, a *balæna*, possibly a Greenland whale (*Balæna mysticetus ?*). At a point farther north there lay fragments of a whole skeleton, probably of the same species. The underjaw was 18 feet 3 inches long; but these bones lay at an elevation of not more than 9 feet above the present sea-level. I also found other indications that the sea must at a comparatively recent period have risen above these low strand-terraces. For instance, they were at many points strewn with mussel shells. This land, then, seems to have been subjected to changes of level analogous to those which have occurred in other northern countries, of which, as above mentioned, I had also seen indications on the north coast of Asia.

One day when Mr. Jackson and Dr. Koetlitz were out on an excursion together they found on a "nunatak," or spur of rock, projecting above a glacier on the north side of Cape Flora, two places which were strewn with vegetable fossils. This discovery, of course, aroused

Mc LAGAN & CUMMING, LITHrs EDINBURGH

ICE NEAR THE 'FRAM,' 4th July 1894. Pastel Sketch.

my keenest interest, and on July the 17th Dr. Koetlitz and I set out for the spot together. The spur of rock consisted entirely of basalt, at some points showing a marked columnar structure, and projected in the middle of the glacier, at a height which I estimated at 600 or 700 feet above the sea. Unfortunately there

A STRANGE ROCK OF BASALT.

was no time to measure its elevation exactly. At two points on the surface of the basalt there was a layer consisting of innumerable fragments of sandstone. In almost every one of these impressions were to be found, for the most part of the needles and

leaves of pine-trees, but also of small fern-leaves. We picked up as many of these treasures as we could carry, and returned that evening heavily laden and in high contentment. On a snowshoe excursion, some days later, Johansen also chanced unwittingly upon the same place, and gathered fossils, which he brought to me. Since my return home, this collection of vegetable fossils has been examined by Professor Nathorst, and it appears that Mr. Jackson and Dr. Koetlitz have here made an extremely interesting find.

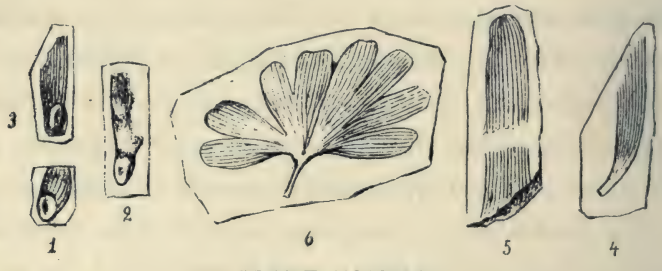
Professor Nathorst writes to me as follows:—"In spite of their very fragmentary condition the vegetable fossils brought home by you are of great interest, as they give us our first insight into the plant world in regions north of the eightieth degree of latitude during the latter part of the jurassic period. The most common are leaves of a fir-tree (*pinus*) which resembles the *pinus Nordenskioldi* (Heer) found in the jurassic strata of Spitzbergen, East Siberia, and Japan, but which probably belongs to a different species. There occur also narrower leaves of another species, and furthermore male flowers and fragments of a pine cone* with several seeds (Figs. 1–3), one of which (Fig. 1) suggests the

* Leigh-Smith had already brought back from Spitzbergen a fossil cone, which Carruthers classified as a *pinus;* but he regarded it as belonging to the upper part of the cretaceous system.

binus Maakiana (Heer) from the jurassic strata of Siberia. Among traces of other pine-trees may be mentioned those of a broad-leaved *taxites* resembling *taxites gramineus* (Heer) specially found in the jurassic strata of Spitzbergen and Siberia, which has leaves of about the same size as those of the *Cephalotaxus Fortunei*, at present existing in China and Japan. It is interesting, too, to find remains of the genus *Feildenia* (Figs. 4 and 5), which has as yet been found only in the Polar regions. It was first discovered by Nordenskiöld in the tertiary strata near Cape Staratschin on Spitzbergen, in 1868, and was described by Heer under the name of *Torellia*. It was subsequently found by Feilden in the tertiary strata at Discovery Bay, in Grinnell Land, during the English Polar Expedition of 1875–76; and Heer now changed the generic name to *Feildenia*, as *Torellia* had already been employed as the name of a mussel. This species has since been found by me in 1882 in the upper jurassic strata of Spitzbergen. The leaves remind one of the leaves of the sub-species *nageia* of the existing genus *podocarpus*.

"The finest specimens of the whole collection are the leaves of a small *ginkgo*, of which one is complete (Fig. 6). This genus, with plum-like seeds and with leaves which, unlike those of other pine-trees, have a real leaf-blade, is found at present, in one single species only, in Japan, but existed in former times in numerous forms and in many regions. During the jurassic period it

flourished especially in East Siberia, and has also been found on Spitzbergen, in East Greenland (at Scoresby Sound), and at many places in Europe, etc. During the cretaceous and the tertiary periods it was still found on the west coast of Greenland at 70° N. lat. The leaf here reproduced belongs to a new species which might be called *ginkgo polaris*, and which is most closely related to the *g. flabellata* (Heer) from the jurassic strata of Siberia. It bears a certain habitual resemblance to *ginkgo digitata* (Lindley and Hutton), particularly as



PLANT FOSSILS.

found in the brown jurassic strata of England and Spitzbergen; but its leaves are considerably smaller. Besides this species, one or two others may also occur in this collection, as well as fragments of the leaves of the genus *czekanowskia*, related to the *ginkgo* family, but with narrow leaf-blades resembling pine-needles.

"Ferns are very scantily represented. Such fragments as there are belong to four different types; but the species can scarcely be determined. One fragment

belongs to the genus *cladophlebis*, common in jurassic strata; another suggests the *thyrsopteris*, found in the jurassic strata of East Siberia and of England; a third suggests the *onychiopsis* characteristic of the upper jurassic strata. The fourth, again, seems to be closely related to the *asplenium* (*Petruschinense*), which Heer has described, found in the Siberian jurassic strata. The specimen is remarkable from the fact that the epidermis cells of the leaf have left a clear impression on the rock.

"With its wealth of pine leaves, its poverty of ferns, and its lack of *cycadeæ*, this Franz Josef Land flora has somewhat the same character as that of the upper jurassic flora of Spitzbergen, although the species are somewhat different. Like the Spitzbergen flora, it does not indicate a particularly genial climate, although doubtless enormously more so than that of the present day. The deposits must doubtless have occurred in the neighbourhood of a pine forest. So far as the specimens enable one to judge, the flora seems to belong rather to the upper (white) jurassic system than to the middle (brown) system."

It was undeniably a sudden transition to come straight from our long inert life in our winter lair, where one's scientific interests found little enough stimulus, right into the midst of this scientific oasis, where there was plenty of opportunity for work, where books and all necessary apparatus were at hand, and where one could employ

one's leisure moments in discussing with men of similar tastes all sorts of scientific questions connected with the Arctic zone. In the botanist of the expedition, Mr. Harry Fisher, I found a man full of the warmest interest in the fauna and flora of the Polar regions, and the exhaustive investigations which his residence here has enabled him to make into the plant-life and animal-life (especially the former) of the locality, both by sea and land, will certainly augment in a most valuable degree our knowledge of its biological conditions. I shall not easily forget the many pleasant talks in which he communicated to me his discoveries and observations. They were all eagerly absorbed by a mind long deprived of such sustenance. I felt like a piece of parched soil drinking in rain after a drought of a whole year.

But other diversions were also available. If my brain grew fatigued with unwonted labour, I could set off with Jackson for the top of the moraine to shoot auks, which swarmed under the basalt walls. They roosted in hundreds and hundreds on the shelves and ledges above us; at other places the kittiwakes brooded on their nests. It was a refreshing scene of life and activity. As we stood up there at a height of 500 feet, and could look far out over the sea, the auks flew in swarms backward and forwards over our heads, and every now and then we would knock over one or two as they passed. Every time a gun was fired, the report echoed through all the rocky clefts, and thousands of

birds flew shrieking down from the ledges. It seemed as though a blast of wind had swept a great dust-cloud down from the crest above; but little by little they returned to their nests, many of them meanwhile falling to our guns. Jackson had here a capital larder, and he made ample use of it. Almost every day he was up under the rock shooting

KITTIWAKE ON HER NEST.

auks, which formed a daily dish at dinner. In the autumn great stores of them were laid in to last through the winter. At other times Jackson and Blomqvist would go up and gather eggs. They dragged a ladder up with them, and by its aid Jackson clambered up the

perpendicular cliffs. This egg-hunting among the loose basalt cliffs where the stones were perpetually slipping away from under one, appeared to me such dare-devil work that I was chary of taking part in it. Far be it from me to deny, however, that the eggs made delicious eating, whether we had them soft-boiled for breakfast, or made into pancakes for dinner. It was remarkable how entirely I had got out of training for climbing in precipitous places. I well remember that the first time I went up the moraine with Jackson, I had to stop and take breath every hundred paces or so. This was, no doubt, due to our long inactivity; perhaps, too, I had become somewhat anæmic during the winter in our lair. But there was more than that in it; the very height and steepness made me uneasy, I was inclined to turn dizzy, and had great difficulty in coming down again, preferring, if possible, simply to sit down and slide. After a while this passed off a little, and I became more accustomed to the heights again. I also became less short-winded, and at last I could climb almost like a normal human being.

In the meantime the days wore on, and still we saw nothing of the *Windward*. Johansen and I began to get a little impatient. We discussed the possibility that the ship might not make its way through the ice, and that we should have to winter here after all. This idea was not particularly attractive to us—to be so near home and yet not to reach home. We regretted that we had not at once pushed on for Spitzbergen; per-

haps we should by this time have reached the much-

BASALTIC CLIFFS.

talked-of sloop. When we came to think of it, why on earth had we stopped here ? That was easily explained.

These people were so kind and hospitable to us that it would have been more than Spartan had we been able to resist their amiability. And then we had gone through a good deal before we arrived, and here was a warm cosy nest, where we had nothing to do but to sit down and wait. Waiting, however, is not always the easiest of work, and we began seriously to think of setting off again for Spitzbergen. But had we not delayed too long? It was the middle of July, and although we should probably get on quickly enough, we might meet with unexpected impediments, and it might take us a month or more to reach the waters in which we could hope to find a ship. That would bring us to the middle or perhaps to the end of August, by which time the sloops had begun to make for home. If we did not come across one at once, when we got into September it would be difficult enough to get hold of one, and then we should perhaps be in for another winter of it after all. No, it was best to remain here, for there was every chance that the ship would make its appearance. The best time for navigating these waters is August and the beginning of September, when there is generally the least ice. We must trust to that, and let the time pass as best it might. There were others than we who waited impatiently for the ship. Four members of the English expedition were also to go home in her, after two years' absence.

"Monday, July 20th. We begin to get more and

more impatient for the arrival of the vessel, but the ice is still tolerably thick here. Jackson says that she should have been here by the middle of June, and thinks that there has, several times, been sufficiently open water for her to have got through ; but I have my doubts about

MR. JACKSON AT ELMWOOD.

that. Though only a little scattered ice is to be seen here, even from a height of 500 feet, that does not mean much ; there may be more ice farther south blocking the way. One day Jackson and the doctor were on the top of the mountain here, and from that point, too, there

seemed to be very little ice in the south; but I am not convinced any the more. I think all experience goes to show that there must still be plenty of ice in the sea to the south. What Mr. Jackson says about the *Windward* having been able to get through as early as July last year without needing to touch the ice, adding that then, too, there was no ice to be seen from here, I do not find at all conclusive. During the last few days more ice has again come drifting in from the east. I long to get away. What if we are shut in here all the winter? Then we shall have done wrong in stopping here. Why did we not continue our journey to Spitzbergen? We should have been at home by now. The eye wanders out over the boundless white plain. Not one dark streak of water—ice, ice!—shut out from the world, from the throbbing life, the life that we believed to be so near.

"Low down on the horizon there is a strip of blue-grey cloud. Far, far away beyond the ice there is open water, and perhaps there, rocked on long swelling billows from the great ocean, lies the vessel which is to bear us to the familiar shores, the vessel which brings tidings from home, and from those we love.

"Dream, dream of home and beauty! Stray bird, here among the ice and snow you will seek for them all in vain. Dream the golden dream of future re-union!"

"Tuesday, July 21st. Have at last got a good wind from the north which is sending the ice out to

JOHANSEN IN JACKSON'S HOUSE.

sea. There is nothing but open sea to be seen this evening; now perhaps there is hope of soon seeing the vessel."

"Wednesday, July 22nd. Continual changes and continual disappointments. Yesterday hope was strong; to-day the wind has changed to the south-east, and driven the ice in again. We may still have to wait a long time."

"Sunday, July 26th. The vessel has come at last. I was awakened this morning by feeling some one pull my legs. It was Jackson, who, with beaming countenance, announced that the *Windward* had come. I jumped up and looked out of the window. There she was, just beyond the edge of the ice, steaming slowly in to find an anchorage. Wonderful to see a ship again! How high the rigging seemed, and the hull! It was like an island. There would be tidings on board from the great world far beyond."

There was a general stir. Every man was up, arrayed in the most wonderful costumes, to gaze out of the window. Jackson and Blomqvist rushed off as soon as they had got on their clothes. As I scarcely had anything to do on board at present I went to bed again, but it was not long before Blomqvist came panting back, sent by the thoughtful Jackson, to say that all was well at home, and that nothing had been heard of the *Fram*. This was the first thing Jackson had asked about. I felt my heart as light as a feather. He said, too, that when

Jackson had told the men who had come to meet him on the ice about us and our journey, they had greeted the intelligence with three hearty cheers.

I had hardly slept two hours that night, and not much more the night before. I tried to sleep, but there was no rest to be had ; I might just as well dress and go on board. As I drew near the vessel, I was greeted with ringing cheers by the whole crew gathered on the deck, where I was heartily received by the excellent Captain Brown, commander of the *Windward*, by Dr. Bruce, and Mr. Wilton, who were both to winter with Jackson, and by the ship's company. We went below into the roomy, snug cabin, and all kinds of news were eagerly swallowed by listening ears, while an excellent breakfast with fresh potatoes and other delicacies glided down past a palate which needed less than that to satisfy it. There were remarkable pieces of news indeed. One of the first was that now they could photograph people through doors several inches thick. I confess I pricked up my ears at this information. That they could photograph a bullet buried in a person's body was wonderful too, but nothing to this. And then we heard that the Japanese had thrashed the Chinese, and a good deal more. Not least remarkable, we thought, was the interest which the whole world now seemed to take in the Arctic regions. Spitzbergen had become a tourist country ; a Norwegian steamship company (the Vesteraalen) had started a regular passenger service

to it,* a hotel had been built up there, and there was a post-office and a Spitzbergen stamp. And then we heard that Andrée was there waiting for wind to go to the Pole in a balloon. If we had pursued our course to Spitzbergen, we should thus have dropped into the very middle of all this. We should have found a hotel and tourists, and should have been brought home in a comfortable modern steamboat, very different from the whaling sloop we had been talking of all the winter, and, indeed, all the previous year. People are apt to think that it would be amusing to see themselves, and I form no exception to this rule. I would have given a good deal to see us in our unwashed, unsophisticated condition, as we came out of our winter lair, plumping into the middle of a band of English tourists, male and female. I doubt whether there would then have been much embracing or shaking of hands, but I don't doubt that there would have been a great deal of peering through ventilators or any other loophole that could have been found.

The *Windward* had left London on June 9th, and Vardö on the 25th. They had brought four reindeer with them for Jackson, but no horses as he had expected.† One reindeer had died on the voyage.

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* I did not dream that Sverdrup a year after would be in command of this steamer.

† Jackson had brought with him several Russian horses, which he

Every one was now busily employed in unlading the *Windward*, and bringing to land the supplies of provisions, coal, reindeer-moss and other such things which it had brought for the expedition. Both the ship's crew and the members of the English expedition took part in this work, which proceeded rapidly, and had soon made a level road over the uneven ice; and now load after load was driven on sledges to land. In less than a week Captain Brown was ready to start for home, and only awaited Jackson's letters and telegrams. They took a few more days, and then everything was ready. In the meantime, however, a gale had sprung up, blowing on the shore, the *Windward's* moorings at the edge of the ice had given way, she was set adrift and obliged to seek a haven farther in, where, however, it was so shallow that there was only one or two feet of water beneath her keel. Meanwhile, the wind drove the ice in, the navigable water closed in all round it outside, and the floes were continually drawing nearer. For a time the situation looked anything but pleasant; but fortunately the ice did not reach the vessel, and she thus escaped being screwed out of the water. After a delay of a couple of days on this account the vessel got out again.

And now we were to bid adieu to this last station

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had used along with dogs on his sledge expeditions. Only one of these horses was alive at the time of our arrival.

on our route where we had met with such a cordial and hospitable reception. A feverish energy came over the little colony. Those who were going home had to make themselves ready for the voyage, and those who were to remain had to bring their letters and other things on board. This, however, was sufficiently difficult. The vessel lay waiting impatiently and incessantly sounding her steam-whistle; and a quantity of loose ice had packed itself together outside the edge of the shore ice, so that it was not easy to move. At last, however, those who were to remain had gone on shore, and we who were going home were all on board—that is to say, Mr. Fisher, the botanist, Mr. Child, the chemist, Mr. Burgess, and the Finn, Blomqvist, of the English expedition, along with Johansen and myself. As the sun burst through the clouds above Cape Flora we waved our hats, and sent our last cheer as a farewell to the six men standing like a little dark spot on the floe in that great icy solitude; and under full sail and steam we set out on the 7th August, with a fair wind, over the undulating surface of the ocean, towards the south.

Fortune favoured us. On her northward voyage the *Windward* had much and difficult ice to combat with, before she at last broke through, and came in to land. Now, too, we met a quantity of ice, but it was slack and comparatively easy to get through. We were stopped in a few places, and had to break a way through

with the engine; but the ship was in good hands. From his long experience as a whaler, Captain Brown knew well how to contend with greater odds than the thin ice we met with here—the only ice that is found in this sea. From morning till night he sat up in the crow's-

CAPE FLORA. FAREWELL TO FRANZ JOSEF LAND.

nest as long as there was a bit of ice in the water. He gave himself little time for sleep; the point was, as he often said to me, to bring us home before the *Fram* arrived, for he understood well what a blow it would give to those near and dear to us if she got home before us.

Thanks to him, we had as short and pleasant a homeward voyage as few, if any, can have had from these inhospitable regions, where we had spent three years. From the moment we set foot on deck, he did everything to make us comfortable and at home on board, and we spent many a pleasant hour together, which will never be forgotten by either of us. But it was not only the captain who treated us in this way. Every man of the excellent crew showed us kindness and goodwill in every way. I cannot think of them—of the little steward for instance, when he popped his head into the cabin to ask what he could get for us, or wakened me in the morning with his cheery voice, or sang his songs for us—without a feeling of unspeakable well-being and happiness. Then, too, we were continually drawing nearer home; we could count the days and hours that must pass before we could reach a Norwegian port, and be once more in communication with the world.

From the experience he had had on the northward voyage, Captain Brown had come to the conclusion that he would find his way out of the ice most easily by first steering in a south-easterly direction towards Novaya Zemlya, which he thought would be the nearest way to the open sea. This proved also to be exactly the case. After having gone about 220 knots through the ice, we came into the open sea at the end of a long bay, which ran northwards into the ice. It was just at the right spot; had we been a little farther east or a little farther

west, we might have spent as many weeks drifting about in the ice, as we now spent days in it. Once more we saw the blue ocean itself in front of us, and we shaped our course straight for Vardö. It was an indescribably delightful feeling once more to gaze over the blue expanse, as we paced up and down the deck, and were day by day carried nearer home. One morning, as we stood looking over the sea, our gaze was arrested by something; what could that be away on the horizon? We ran on to the bridge and looked through the glass. The first sail. Fancy being once more in waters where other people went to and fro! But it was far away; we could not go to it. Then we saw more, and later in the day four great monsters ahead. They were British men-of-war, probably on their way home after having been at Vadsö for the eclipse of the sun, which was to have taken place on August 9th. Later in the evening (August 12th) I saw something dark ahead, low down on the horizon. What was it? I saw it on the starboard bow, stretching low and even towards the south. I looked again and again. It was land, it was Norway! I stood as if turned to stone, and gazed and gazed out into the night at this same dark line, and a fear began to tremble in my breast. What were the tidings that awaited me there?

When I came on deck next morning we were close under the land. It was a bare and naked shore we had come up to, scarcely more inviting than the land we had

left up in the mist of the Arctic Ocean—but it was Norway. The captain had mistaken the coast in the night and had come in too far north, and we were still to have some labour in beating down against wind and sea, before we could reach Vardö. We passed several vessels, and dipped our flag to them. We passed the revenue cutter; she came alongside, but they had nothing to do there, and no one came on board. Then came pilots, father and son. They greeted Brown, but were not prepared to meet a countryman on board an English vessel. They were a little surprised to hear me speak Norwegian, but did not pay much attention to it. But when Brown asked them if they knew who I was, the old man gazed at me again, and a gleam, as it were, of a possible recognition crept over his face. But when the name Nansen dropped from the lips of the warm-hearted Brown, as he took the old man by the shoulders and shook him in his delight at being able to give him such news, an expression came into the old pilot's weather-beaten face, a mixture of joy and petrified astonishment, which was indescribable. He seized my hand, and wished me welcome back to life; the people here at home had long ago laid me in my grave. And then came questions as to news from the expedition, and news from home. Nothing had yet been heard of the *Fram*, and a load was lifted from my breast, when I knew that those at home had been spared that anxiety.

Then, silently and unobserved, the *Windward* glided, with colours flying, into Vardö Haven. Before the anchor was dropped, I was in a boat with Johansen on our way to the telegraph station. We put in at the quay, but there was still so much of our former piratical appearance left that no one recognised us; they scarcely looked at us, and the only being that took any notice of the returned wanderers was an intelligent cow, which stopped in the middle of a narrow street, and stared at us in astonishment, as we tried to pass. That cow was so delightfully summery to look at that I felt inclined to go up and pat her; I felt now that I really was in Norway. When I got to the telegraph-station I laid a huge bundle down on the counter, and said that it consisted of telegrams that I should like to have sent as soon as possible. There were nearly a hundred of them, one or two rather long, of about a thousand words each.

The head of the telegraph office looked hard at me, and quietly took up the bundle; but as his eye fell upon the signature of the telegram that lay on the top, his face suddenly changed, he wheeled sharp round, and went over to the lady clerk who was sitting at the table. When he again turned and came towards me his face was radiant, and he bade me a hearty welcome. The telegrams should be despatched as quickly as possible, he said; but it would take several days and nights to get them all through. And then the instrument began to tick and

tick, and to send through the country and the world the news that two members of the Norwegian Polar Expedition had returned safe and sound, and that I expected the *Fram* home in the course of the autumn. I pitied the four young ladies in the telegraph office at Vardö; they had hard work of it during the following days. Not only had all my telegrams to be despatched, but hundreds streamed in from the south—both to us and to people in the town, begging them to obtain information about us. Amongst the first were telegrams to my wife, to the King of Norway, and to the Norwegian Government. The last ran as follows:—

"To His Excellency Secretary Hagerup:

"I have the pleasure of announcing to you and to the Norwegian Government that the Expedition has carried out its plan, has traversed the unknown Polar Sea from north of the New Siberian Islands, and has explored the region north of Franz Josef Land as far as 86° 14′ N. lat. No land was seen north of 82°.

"Lieutenant Johansen and I left the *Fram* and the other members of the Expedition on March 14th, 1895, in 84° N. lat. and 102° 27′ E. long. We went northward to explore the sea north of the *Fram's* course, and then came south to Franz Josef Land, whence the *Windward* has now brought us.

"I expect the *Fram* to return this year.

"Fridtjof Nansen.

As I was leaving the telegraph-office, the manager told me that my friend Professor Mohn was in the town, staying, he understood, at the hotel. Strange that Mohn, a man so intimately connected with the expedition, should be the first friend I was to meet! Even while we were handing in our telegrams, the news of our arrival had begun to filter through the town, and people were gradually flocking together to see the two Polar bears who strode through the streets to the hotel. I rushed in and enquired for Mohn. He was in his room, number so and so, they told me; but he was taking his siesta. I had no respect for siestas at that moment; I thundered at the door and tore it open. There lay Mohn on the sofa, reading, with a long pipe in his mouth. He started up and stared fixedly, like a madman, at the long figure standing on the threshold; his pipe fell to the ground, his face twitched, and then he burst out: "Can it be true? Is it Fridtjof Nansen?" I believe he was alarmed about himself, thinking he had seen an apparition; but when he heard my well-known voice, the tears came to his eyes, and crying, "Thank God, you're still alive!" he rushed into my arms. Then came Johansen's turn. It was a moment of wild rejoicing, and numberless were the questions asked and answered on both sides. As one thing after another came into our heads, the questions rained around without coherence and almost without meaning. The whole thing seemed so incredible

that a long time passed before we even collected ourselves sufficiently to sit down, and I could tell him in a somewhat more connected fashion what experiences we had gone through during these three years. But where was the *Fram?* Had we left her? Where were the others? Was anything amiss? These questions poured forth with breathless anxiety, and it was no doubt the hardest thing of all to understand that there was nothing amiss, and yet that we had left our splendid ship. But, little by little, even that became comprehensible; and then all was rejoicing, and champagne and cigars presently appeared on the scene. Another acquaintance from the south was also in the hotel; he came in to speak to Mohn; but seeing that he had visitors, was on the point of going again. Then he stopped, stared at us, discovered who the visitors were, and stood as though nailed to the spot; and then we all drank to the Expedition and to Norway. It was clear that we must stop there that evening, and we sat the whole afternoon talking and talking without a pause. But meanwhile the whole town had learnt the names of its newly-arrived guests, and when we looked out of the window the street was full of people, and from all the flagstaffs over the town, and from all the masts in the harbour, the Norwegian flag waved in the evening sunshine. And then came telegrams in torrents, all of them bringing good news. Now all our troubles were over. Only the arrival of the *Fram* was wanting to

complete things ; but we were quite at ease about her ; she would soon turn up. The first thing we had to do, now that we were on Norwegian soil, and could look about us a little, was to replenish our wardrobe. But it was now no joke to make our way through the streets, and if we went into a shop, it was soon overflowing with people.

Thus we spent some never-to-be-forgotten days in Vardö, and the hospitality with which we met was lavish and cordial. After we had said good-bye to our hosts on board the *Windward* and thanked them for all the kindness they had shown us, Captain Brown weighed anchor on the morning of Sunday, the 16th, to go on to Hammerfest. He wanted to pay his respects to my wife, who was to meet us there. On August 21st Johansen and I arrived at Hammerfest. Everywhere on the way people had greeted us with flowers and flags, and now, as we sailed into its harbour, the northernmost town in Norway was in festal array from the sea to the highest hill-top, and thousands of people were afoot. To my surprise, I also met here my old friend, Sir George Baden-Powell, whose fine yacht, the *Otaria*, was in the harbour. He had just returned from a very successful scientific expedition to Novaya Zemlya, where he had been with several English astronomers to observe the solar eclipse of August 9th. With true English hospitality, he placed his yacht entirely at my disposal, and I willingly accepted his generous invitation.

Sir George Baden-Powell was one of the last people I had seen in England. When we parted—it was in the autumn of 1892—he asked me where we ought to be looked for if we were too long away. I answered that it would be of little use to look for us—it

ARRIVAL AT HAMMERFEST

would be like searching for a needle in a hay-stack. He told me I must not think that people would be content to sit still and do nothing. In England, at any rate, he was sure that something would be done—and where ought they to go? "Well," I replied, "I can scarcely think

of any other place than Franz Josef Land; for if the *Fram* goes to the bottom, or we are obliged to abandon her, we must come out that way. If the *Fram* does not go to the bottom, and the drift is as I believe it to be, we shall reach the open sea between Spitzbergen and Greenland." Sir George now thought that the time had come to look for us, and since he could not do more for the present, it was his intention, after having carried out his expedition to Novaya Zemlya, to skirt along the edge of the ice, and see if he could not pick up any news of us. Then, just at the right moment, we made our appearance at Hammerfest. In the evening, my wife arrived, and my secretary, Christofersen; and after having attended a brilliant fête given that night by the town of Hammerfest in our honour, we took up our quarters on board the *Otaria*, where the days now glided past so smoothly that we scarcely noticed the lapse of time. Telegrams of congratulation, and testimonies of goodwill and hearty rejoicing, arrived in an unbroken stream from all quarters of the world.

But the *Fram?* I had telegraphed confidently that I expected her home this year; but why had she not already arrived? I began more and more to think over this, and the more I calculated all chances and possibilities, the more firmly was I convinced that she ought to be out of the ice by this time, if nothing had gone amiss. It was strange that she was not already here, and I thought with horror that if the

autumn should pass without news of her, the coming winter and summer would be anything but pleasant.

Just as I had turned out on the morning of August 20th, Sir George knocked at my door and said there was a man there who insisted on speaking to me. I answered that I wasn't dressed yet, but that I would come immediately. "Oh, that doesn't matter," said he, "come as you are." I was a little surprised at all this urgency, and asked what it was all about. He said he did not know, but it was evidently something pressing. I nevertheless put on my clothes, and then went out into the saloon. There stood a gentleman with a telegram in his hand, who introduced himself as the head of the telegraph office, and said that he had a telegram to deliver to me which he thought would interest me, so he had come with it himself. Something that would interest me? There was only one thing left in the world that could really interest me. With trembling hands I tore open the telegram :—

"Fridtjof Nansen.

"*Fram* arrived in good condition. All well on board. Shall start at once for Tromsö. Welcome home.

"Otto Sverdrup."

I felt as if I should have choked, and all I could say was, "The *Fram* has arrived!" Sir George, who was standing by, gave a great leap of joy; Johansen's face was radiant;

Christofersen was quite overcome with gladness; and there in the midst of us stood the head of the telegraph office, enjoying the effect he had produced. In an instant I dashed into my cabin to shout to my wife that the *Fram* had arrived; she was dressed and out in double quick time. But I could scarcely believe it—it seemed like a fairy tale. I read the telegram again and again before I could assure myself that it was not all a dream; and then there came a strange, serene happiness over my mind such as I had never known before.

There was jubilation on board and over all the harbour and town. From the *Windward*, which was just weighing anchor to precede us to Tromsö, we heard ringing cheers for the *Fram* and the Norwegian flag. We had intended to start for Tromsö that afternoon, but now we agreed to get under weigh as quickly as possible, so as to try to overtake the *Fram* at Skjærvö, which lay just on our route. I attempted to stop her by a telegram to Sverdrup, but it arrived too late.

It was a lively breakfast we had that morning. Johansen and I spoke of how incredible it seemed that we should soon press our comrades' hands again. Sir George was almost beside himself with joy; every now and then he would spring up from his chair, thump the table, and cry: "The *Fram* has arrived! The *Fram* has really arrived!" Lady Baden-Powell was quietly happy; she enjoyed our joy.

The next day we entered Tromsö harbour, and there

THE WINDWARD LEAVING TROMSO.

lay the *Fram*, strong and broad and weather-beaten. It was strange to see again that high rigging and the hull we knew so well. When last we saw her she was half buried in the ice ; now she floated freely and proudly on the blue sea, in Norwegian waters. We glided alongside of her. The crew of the *Otaria* greeted the gallant ship with three times three English cheers, and the *Fram* replied with a nine-fold Norwegian hurrah. We dropped our anchor, and the next moment the *Otaria* was boarded by the *Fram's* sturdy crew.

The meeting which followed I shall not attempt to describe. I don't think any of us knew anything clearly, except that we were all together again—we were in Norway—and the expedition had fulfilled its task.

Then we set off together southward along the Norwegian coast. First came the tug *Haalogaland*, chartered by the Government, then the *Fram*, heavy and slow, but so much the surer, and last the elegant *Otaria*, with my wife and me on board—which was to take us to Trondhjem. What a blessed sensation it was to sit in peace at last, and see others take the lead and pick out the way.

Wherever we passed, the heart of the Norwegian people went out to us, from the steamers crowded with holiday-making townsfolk, and from the poorest fishing-boat that lay alone among the skerries. It seemed as if old Mother Norway were proud of us, as if she pressed us in a close and warm embrace, and thanked us for what we had done. And what was

it, after all? We had only done our duty, we had simply accomplished the task we had undertaken, and it was we who owed her thanks for the right to sail under her flag. I remember one morning in particular. It was in Brönösund—the morning was still grey and chill when I was called up—there were so many people who wanted to greet us. I was half asleep when I came on deck. The whole sound was crowded with boats. We had been going slowly through them, but now the *Haalogaland* in front put on more speed, and we too went a little quicker. A fisherman in his boat toiled at the oars to keep up with us; it was no easy work. Then he shouted up to me:

"You don't want to buy any fish, do you?"

"No, I don't think we do."

"I suppose you can't tell me where Nansen is? Is he on board the *Fram?*'

"No, I believe he's on board this ship," was the reply.

"Oh, I wonder if I couldn't get on board? I'm so desperately anxious to see him."

"It can hardly be done, I'm afraid; they haven't time to stop now."

"That's a pity. I want to see the man himself."

He went on rowing. It became harder and harder to keep up, but he stared fixedly at me as I leant on the rail smiling, while Christofersen stood laughing at my side.

"Since you're so anxious to see the man himself, I may tell you that you see him now," said I.

"Is it you! Is it you! Didn't I guess as much Welcome home again!"

And thereupon the fisherman dropped his oars, stood up in his boat, and took off his cap. As we went on through the splendour of the morning, and I sat on the deck of the luxurious English yacht, and saw the beautiful barren coast stretching ahead in the sunshine, I realised to the full for the first time how near this land and this people lay to my heart. If we had sent a single gleam of sunlight over their lives, these three years had not been wasted.

> This Norway, this Norway . . . .
> It is dear to us, so dear,
> And no people has a fairer land than this our homeland here.
> Oh, the shepherding in spring,
> When the birds begin to sing,
> When the mountain-peak glitters and green grows the lea,
> And the turbulent river sweeps brown to the sea . . .
> Whoso knows Norway must well understand
> How her sons can suffer for such a land.

One felt all the vitality and vigour throbbing in this people, and saw as in a vision its great and rich future, when all its prisoned forces shall be unfettered and set free.

Now one had returned to life, and it stretched before one full of light and hope. Then came the evenings when the sun sank far out behind the blue sea, and the clear melancholy of autumn lay over the face of the waters. It was too beautiful to believe in. A feeling of dread came over one; but the silhouette of a woman's

form, standing out against the glow of the evening sky, gave peace and security.

So we passed from town to town, from fête to fête, along the coast of Norway. It was on September 9th that the *Fram* steamed up Christiania Fjord and met with a reception such as a prince might have envied. The stout old men-of-war, *Nordstjernen* and *Elida*, the new and elegant *Valkyrie*, and the nimble little torpedo-boats, led the way for us. Steamboats swarmed around all black with people. There were flags high and low, salutes, hurrahs, waving of handkerchiefs and hats, radiant faces everywhere, the whole fjord one multitudinous welcome. There lay home, and the well-known strand before it, glittering and smiling in the sunshine. Then steamers on steamers again, shouts after shouts; and we all stood hat in hand bowing as they cheered.

The whole of Peppervik was one mass of boats and people and flags and waving pennants. Then the men-of-war saluted with thirteen guns apiece, and the old fort of Akershus followed with its thirteen peals of thunder, that echoed from the hills around.

In the evening I stood on the strand out by the fjord. The echoes had died away, and the pine woods stood silent and dark around. On the headland the last embers of a bonfire of welcome still smouldered and smoked, and the sea rippling at my feet seemed to whisper: "Now you are at home." The deep peace of the autumn evening sank beneficently over the weary spirit.

I could not but recall that rainy morning in June when I last set foot on this strand. More than three years had passed; we had toiled and we had sown, and now the harvest had come. In my heart I sobbed and wept for joy and thankfulness.

The ice and the long moonlit polar nights, with all their yearning, seemed like a far-off dream from another world—a dream that had come and passed away. But what would life be worth without its dreams?

THE MEAN TEMPERATURE OF EVERY MONTH DURING NANSEN AND JOHANSEN'S SLEDGE JOURNEY.

Date.	Mean Temperature (Fahr.).	Maximum.	Minimum.
	°	°	°
March (16–31) 1895 .	— 37	— 9	— 51
April 1895 .	— 20	— 2	— 35
May 1895 .	— 24	28	— 11
June 1895 .	30	38	9
July 1895 .	32	37	28
August 1895 .	29	36	19
September 1895 .	20	41	— 4
October 1895 .	— 1	16	— 13
November 1895 .	— 13	10	— 35
December 1895 .	— 13	12	— 37
January 1896 .	— 14	19	— 46
February 1896 .	— 10	30	— 40
March 1896 .	10	30	— 29
April 1896 .	8	27	— 16
May 1896 .	18	43	— 11
June (1–16) 1896 .	29	39	23

Petermann Land
King Oscar Land
Karl Alexander Land
Zichy Land
Markham Sound
Mac-Clintock Island
Wilczek Glacier
RAWLINSON SOUND
AUSTRIA SOUND
ORIGINAL MAP
of the
KAISER FRANZ JOSEF LAND
surveyed by
JULIUS PAYER.
Explanation.
Open Water
Level Ice
Ice Hummocks with Icebergs
Coast Lines not accurately determined

REPORT OF CAPTAIN OTTO SVERDRUP ON THE DRIFTING OF THE *FRAM* FROM MARCH 14TH, 1895.

CHAPTER I.

MARCH 15TH TO JUNE 22ND, 1895.

As far back as February 26th, Dr. Nansen had officially informed the crew that after he left the ship I was to be chief officer of the expedition, and Lieutenant Scott-Hansen second in command. Before starting, he handed me a letter, or set of instructions, which has been mentioned earlier in the volume.*

The day after that on which the postscript to my instructions is dated, *i.e.*, on Thursday, March 14th, at 11.30 a.m., Dr. Nansen and Johansen left the *Fram* and set forth on their sledge expedition. We gave them a parting salute with flag, pennant, and guns. Scott-Hansen, Henriksen, and Pettersen accompanied them as far as the first camping-place, 7 or 8 miles from the vessel, and returned the next day at 2.30 p.m.

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* *Vide* pp. 73 and 88, Vol. II.

In the morning they had helped to harness the dogs and put them to the three sledges. In the team of the last sledge there were "Barnet" and "Pan," who all the time had been mortal enemies.* They began to fight, and Henriksen had to give "Barnet" a good thrashing in order to part him from the other. In consequence of this fight the last team was somewhat behind in starting. The other dogs were all the while hauling with all their might, and when the thrashing scene was over, and the disturbers of the peace suddenly commenced to pull, the sledge started off faster than Johansen had calculated, and he was left behind and had to strike out well on his snowshoes. Scott-Hansen and the others followed the sledging party with their eyes until they looked like little black dots far, far away on the boundless plain of ice. With a last sad lingering look after the two whom, perhaps, they might never see again, they put on their snowshoes and started on their journey back.

At the time when the sledge expedition started the *Fram* lay in 84° 4′ N. lat. and 102° E. long. The situation was briefly as follows:—The vessel was ice-bound in about 25 feet of ice, with a slight list to starboard. She had thus a layer of ice, several feet in thickness, underneath her keel. Piled high against the vessel's side, to port, along her entire length, there

* Little "Barnet," who weighed only 38 lbs., and was one of the smallest of the dogs, was a regular fighter, and, as a rule, the aggressor.

extended from S.S.E. to N.N.W., a pressure-ridge, reaching up to about the height of the rail on the half-deck aft and slanting slightly eastward from the ship. At a distance of about 160 yards to the north-west there extended in the direction from south to north a long and fairly broad ice-mound, the so-called "great hummock," as much as 22 feet high in places. Midway between the *Fram* and the "great hummock" there was a newly-formed open lane about 50 yards wide, while across her bow, at a distance of 50 yards, there was an old channel that had been closed up by the ice-pressure, but which opened later on in the spring.

Upon the "great hummock," which had been formed by the violent ice-pressure on January 27th, 1894, we had established our depôt, on the slope looking towards the ship. The depôt, consisted of piled-up tin boxes containing provisions and other necessaries, and formed six or seven small mounds covered with sail-cloth. Moreover our snowshoes and sledges were stored there. Half-way between the vessel and the great hummock lay the petroleum-launch which, when the new channel or rift had opened right under her, had to be drawn a little way further out on to the ice. Finally there was our forge. This was situated about 30 yards off, a little abaft the port quarter, and was hewn out in the slope of the above-mentioned pressure-ridge, the roof being made of a quantity of spars over which blocks of ice were piled, with a layer of snow on the top, all frozen together

so as to form a compact mass. A tarpaulin served in place of a door.

The first and most pressing work which we had to take in hand was to remove part of the high pressure-ridge on the port side. I was afraid that if the ice-pressure continued the vessel might be forced down instead of upwards while she had so high a ridge of ice resting against the whole of her port side. The work was commenced by all hands on March 19th. We had five sledges, with a box on each, and each worked by two men. There were two parties at work simultaneously with one sledge each—forward, and two parties aft—working towards each other, while the fifth party of two men with one sledge were cutting a passage 13 feet wide, right up to the middle of the vessel. The layer of ice which was in this way removed from all along the vessel's side reached to double the height of a man, except in the central passage, where it had previously been removed to a depth of about 3 yards, partly in view of possible ice-pressure against this, the lowest part of the hull, and partly in order to clear the gangway, by which the dogs passed to and from the vessel.

The carting away of ice commenced on March 19th, and concluded on the 27th. The whole of the pressure-ridge on the port side was removed down to such a depth that two-and-a-half planks of the ship's ice-skin were free. All the time while this work was going on, the weather was fairly cold, the temperature down to

DIGGING OUT THE FRAM. MARCH, 1895.

38 and — 40° C. (— 36·4° and — 40° Fahr.). However, all passed off well and successfully, except that Scott-Hansen was unfortunate enough to have one of his big toes frozen.

The doctor and I were together at the same sledge. My diary says :—" He always suspected me of being out of temper, and I him." As a matter of fact, it is my habit to dislike talking when I am busy with any work, while the reverse is the case with the doctor. As, according to my custom, I kept silence, the doctor believed that I was in a bad humour, and in the same way I fancied that he was in the sulks, because he abstained from chatting. But the misunderstanding was soon cleared up, and we laughed heartily at it.

As Dr. Nansen's and Johansen's departure afforded an opportunity for a more comfortable redistribution of quarters, I moved into Nansen's cabin, after having packed in cases the effects he left behind, and stowed them away in the fore-hold. Jacobsen, the mate, who was formerly quartered with four of the crew in the large cabin on the port-side, had my cabin allotted to him; and in the starboard cabin, where four men had been quartered, there were now only three. The work-room, too, was restored to its former honour and dignity. The lamp-glasses of the oil-stove there had got broken in the course of the year. Amundsen now replaced these with chimneys of tin, and fitted thin sheets of mica over the peepholes. The stove having thus been repaired the work-room

became the busiest and most comfortable compartment in the whole vessel.

After the various operations of shifting and putting in order the things on board and in the depôt, our next care was to ensure easy and convenient access to the vessel by constructing a proper gangway aft, consisting of two spars with packing-case planks nailed between them, and a rope hand-rail attached.

When all this was done, we set to work at the long and manifold preparations of every kind for a sledge journey southward, in the event (which, as a matter of fact, none of us considered likely) of our being obliged to abandon the *Fram*. We constructed sledges and kayaks, sewed bags for our stores, selected and weighed out provisions and other necessaries, etc., etc. This work kept us busy for a long time.

In addition to all the other things we had to provide ourselves with more snowshoes, as we were scantily supplied with them. Snowshoes we *must* have, good strong ones, at least one pair to every man. But where were the materials to come from? There was no more wood fit for making snowshoes to be found on board. It is true that we had a large piece of oak-timber left available, but we were in need of a suitable instrument to split it with, as it could not be cut up with the small saws we had on board. In our dilemma we had recourse to the ice-saw. Amundsen converted it (by filing it in a different way) into a rip-saw; Bentzen made handles

THE FRAM WHEN DUG OUT OF THE PRESSURE-MOUND. END OF MARCH, 1895.

for it; and as soon as it was ready, Mogstad and Henriksen commenced to saw the beam of oak to pieces. At first the work went slowly, most of the time being taken up with filing and setting the saw; but gradually it went better, and on April 6th the timber was cut up into six pairs of good boards for making snowshoes, which were temporarily deposited in the saloon for drying. As I consider Canadian snowshoes superior to Norwegian snowshoes, when it is a question of hauling heavily-loaded sledges over such a rough and uneven surface as is presented by Polar ice, I directed Mogstad to make ten Canadian pairs of maple-wood, of which we had a quantity on board. Instead of the netting of reindeer-skin, we stretched sail-cloth over the frames. This did the same service as network, while it had the advantage of being easier to repair. With the snowshoes which we had we undertook frequent excursions, more particularly Scott-Hansen and myself. While out on one of these trips, on which Amundsen, Nordahl, and Pettersen also accompanied us, 3 miles west of the vessel we came across a large hummock, which we named "Lovunden," on account of its resemblance to the island "Lovunden," off the coast of Helgeland. This hummock presented very good snowshoeing slopes and we practised there to our heart's content.

On May 1st we had finished the snowshoes intended for daily use, and I gave orders that, henceforth, daily snowshoe trips should be made by all hands from

11 a.m. till 1 p.m., if the weather was good. These snowshoe runs were to everybody's taste, and were necessary, not only in order to afford brisk exercise in the open air, but also in order to impart to those who were less accustomed to snowshoes, a sufficient degree of skill in the event of our having to abandon the *Fram*.

While the removal of the ridge was proceeding, there continued to be a good deal of disturbance in the ice. Twenty yards from the vessel, a new lane was formed running parallel to the old one between us from the depôt; and in addition to this a number of larger or smaller cracks had opened in all directions. A little later on, during the time from April 11th to May 9th, there was on the whole considerable disturbance in the ice, with several violent pressures in the lanes around the vessel. On the first-mentioned day, in the evening, Scott-Hansen and I took a snowshoe trip towards the north-east, along the new channel between the vessel and the depôt. On our way back pressure set in in the channel, and we had an opportunity of witnessing a "screwing" such as I had never seen equalled. First there was quite a narow channel, running parallel to the principal channel, which was covered over with young ice about 2 feet thick. Thereupon a larger channel opened just beyond the first and running alongside it. During the pressure which then followed, the edges crashed against each other with such violence as to

FITTING THE HAND-SLEDGES WITH RUNNERS. JULY, 1895.

force the ice down, so that we frequently saw it from 3 to 4 fathoms deep under water.

Newly-frozen sea-ice is marvellously elastic, and will bend to an astonishing degree without breaking. In another place we saw how the new ice had bulged up in large wave-like eminences, without breaking.

On May 5th the wide lane aft was jammed up by ice-pressure, and in its stead a rift was formed in the ice on the port side about 100 yards from us, and approximately parallel to the ship. Thus we now lay in an altered position, inasmuch as the *Fram* was no longer connected with and dependent on one solid and continuous ice-field, but separated from it by more or less open channels and attached to a large floe which was daily decreasing in size as new cracks were formed.

The principal channel aft of the vessel continued to open out during the latter part of April, and on the 29th had become very wide. It extended north as far as the eye could reach, and was conspicuous, moreover, by reason of the dark reflection which seemed to hover above it in the sky. It probably attained its maximum width on May 1st, when Scott-Hansen and I measured it and found that just astern of the vessel it was 975 yards, and further north over 1,500 yards (1,432 metres) in width. Had the *Fram* been loose at the time I should have gone north in the channel as far as possible, but this was not to be thought of, seeing how the ship had been raised up on, and walled in by, the ice.

No later than May 2nd the principal channel closed up again. The mate, Nordahl, and Amundsen, who just then happened to be out on a snowshoe trip south along the channel, were eye-witnesses of the jamming of the ice, which they described as having been a grand sight. The fresh south-easterly wind had imparted a considerable impetus to the ice, and when the edges of the ice approached each other with considerable velocity and force, two large projecting tongues first came into collision with a crash like thunder, and in a moment were forced up in a hummock about 20 feet high, only to collapse soon after, and disappear with equal suddenness under the edge of the ice. Wherever the ice was not forced up into the air, the one ice-edge would slide over or under the other, while all the projecting tongues and blocks of ice were crushed to thousands of fragments which filled up, pretty evenly, any small crevices still remaining of what had before been such a mighty opening.

Our drift towards the north, during the first month, was almost nil. For instance, on April 19th we had not advanced more than 4 minutes of latitude (about 4 miles), to the north. Nor did we drift much to the west in the same period. Later on we made better headway, but not, by a long way, as much as in 1894. On May 23rd I wrote in the Journal as follows: "We are all very anxious to see what will be the nett result of our spring drift. If we could reach 60° E. long. by the

summer or autumn, I believe we could be certain to get back home about the autumn of 1896. The spring drift, this year, is considerably less strong than last year, but perhaps it may continue longer into the summer. If we were to drift this year as far as last, during the time from May 16th to June 16th, we should reach 68° E. long., but it will not be possible now to reach that longitude so early. Possibly we may manage this year to escape the strong back-drift during the summer, make a little headway instead, and if so it will be all the better for us. The ice is not so much cut up by channels this year as it was this time last year. It is true there are a good many; but last year we could scarcely get about at all simply on account of the lanes. This year we have large sheets of ice ahead of us in which scarcely any openings are to be found."

In order to observe the drift of the ice we prepared a kind of log-line, from 100 to 150 fathoms in length, to the end of which there was attached a conical open bag of loosely-woven material, in which small animals could be caught up. Immediately above the bag a lead was fitted to the line, so that the bag itself might drag freely in the water. The log was lowered through a fairly wide hole in the ice, which it was a most difficult task to keep open during the cold season. Several times a day the line was examined and the "angle of drift" was measured. For this measurement we had constructed a quadrant

fitted with a plumb-line. Now and then we would haul in the log-line to see whether it was still in order and to collect whatever the bag might contain in the way of little animals or other objects. As a rule the contents were insignificant, consisting only of a few specimens of low organisms.

At the end of May the "spring drift" was over. The wind veered round to the S.W., W. and N.W. The backdrift or "summer drift" then set in. However, it was not of long duration, as by June 8th we again had an easterly wind with a good drift to the west, so that on the 22nd we were at 84° 31·7′ N. lat. and 80° 58′ E. long.; and during the last days of June and the greater part of July the drift went still better.

A circumstance which helped to increase the monotony of our drift in the ice during the winter and spring, 1895, was the great scarcity of animal life in that part of the Polar Sea. For long periods at a stretch we did not see a single living thing; even the Polar bears, who roam so far, were not to be seen. Hence the appearance in the afternoon of May 7th of a small seal in a newly-opened lane, close by the vessel, was hailed with universal delight. It was the first seal that we had set eyes upon since March. Subsequently we often saw seals of the same kind in the open channels, but they were very shy, so that it was not until well on in the summer that we succeeded in killing one, and this was so small that we ate the whole of it at one meal.

VIEW OVER THE DRIFT ICE. DEPÔT IN FOREGROUND.

On May 14th, Pettersen told us that he had seen a white bird, as he thought an ice-gull, flying westward. On the 22nd, Mogstad saw a snow-bunting, which circled round the vessel, and after this the harbingers of spring became daily more numerous.

Our hunting bags, however, were very scanty. It was not until June 10th that we secured the first game, when the doctor succeeded in shooting a fulmar and a kittiwake (*Larus tridactylus*). True, he prefaced these exploits by sundry misses, but in the end he managed to hit the birds, and "all's well that ends well." As regards the fulmar it was an exciting chase, as it had only been winged, and took refuge in the open channel. Pettersen was the first to go after it, followed by Amundsen, the Doctor, Scott-Hansen, and the whole pack of dogs, and at last they managed to secure it.

After this, it was a matter of daily occurrence to see birds quite near, and in order to be better able to secure them, and seals to boot, we moored our sealing-boat in the open channel. This was equipped with a sail, and with ballast composed of some of the castings from the wind-mill, which we had been obliged to take down; and the very first evening after the boat had been put on the water, Scott-Hansen, Henriksen, and Bentzen went for a sail in the channel. The dogs seized this occasion to take some capital exercise. They took it into their heads to follow the boat along the edge of the channel, backwards and forwards as the boat tacked; it was stiff

work for them to keep always abreast of it, as they had to make many détours round small channels and bays in the ice, and when at last they had got near it, panting, and with their tongues protruding far from their mouths, the boat would go about, and they had to cover the same ground over again.

On June 20th the Doctor and I shot one black guillemot each. We also saw some little auks, but the dogs, entering too eagerly into the sport, as a welcome break in the prolonged oppressive solitude and monotony, rushed ahead of us, and scared the birds away before we could get a shot at them.

As I have already mentioned, the mill had to be taken down. The shaft broke one fine day below the upper driving-wheel, and had to be removed and taken to the forge for repair. Pettersen welded it together again, and on May 9th the mill was again in sufficiently good order for use. But it wore out very speedily, more especially in the gearings, so that, after the first week or two in June, it was almost useless. We therefore pulled it down, and stowed away all wooden parts and castings on the ridge on the port side, except portions of hard wood, which we kept on board, and found very useful for making up into sledge shafts and other things.

The weather was good all through March, April, and May, with mild easterly breezes or calms, and, as a rule, a clear atmosphere. Once or twice the wind veered round to the south or west, but these changes were

invariably of short duration. This settled calm weather at last became quite a trial to us, as it contributed in a great measure to increase the dreariness and monotony of the scene around us, and had a depressing effect on our spirits. Matters improved a little towards the end of May, when for a time we had a fresh westerly breeze. To be sure this was a contrary wind, but it was, at any rate, a little change. On June 8th the wind veered round to the east again, and now increased in strength, so that on Sunday, the 9th, we had half a gale from the E.S.E., with a velocity of 33 feet per second, being the strongest fair wind we had had for a long time.

It was astonishing what a change a single day of fair wind would work in the spirits of all on board. Those who previously moved about dreamily and listlessly, now awakened to fresh courage and enterprise. Every face beamed with satisfaction. Previously our daily intercourse consisted of the monosyllables, "Yes" and "No"; now we were brimming over with jokes and fun from morning to night; laughter and song, and lively chat was heard all around. And with our spirits rose our hopes for a favourable drift. The chart was brought out again and again, and the forecasts made were apt to be sanguine enough. "If the wind keeps long in this quarter we shall be at such and such a spot on such and such a day. It is as clear as daylight we shall be home some time in the autumn of 1896. Just see how we have drifted up

to now, and the further we get west the faster we shall go," and so forth.

The cold which in the middle of March did not exceed −40° C., kept steadily at from −30° C. (−22° F.) to −25° C. (−13° F.) during April, but it decreased at a comparatively rapid rate in May, so that by about the middle of the month the thermometer registered −14°, and in the latter part only −6°. On June 3rd —so far the warmest day—a large pond of water had formed close to the vessel, although the highest temperature attained that day was −2°, and the weather was overcast.*

On June 5th the thermometer for the first time stood above freezing-point, viz., at +0·2°. It then fell again for a few days, going down to −6°, but on the 11th it rose again to about 2° above freezing-point, and so on.

The amount of atmospheric moisture deposited during the above-mentioned period was most insignificant; only a very slight snowfall now and then. However, Thursday, June 6th, was an exception. The wind, which for

* On April 18th, when the doctor and I were out looking for a suitable piece of ice for determining the specific gravity of the ice, we observed a remarkable drop of water hanging under a projecting corner of a large block of ice, reared up high by pressure. There it hung, in the shade, quivering in the fresh breeze, although the thermometer registered about − 23° of frost. "That must be very salt," I said, and tasted it—"Phew!" It was salt in very truth—rank salt, like the strongest brine.

several days had been blowing from the south and west, veered round to the north-west during the night, and at 8 a.m. next morning it changed to the north, blowing a fresh breeze, with an exceptionally heavy snowfall.

We saw the midnight-sun for the first time during the night of April 2nd.

One of the scientific tasks of the expedition was to investigate the depth of the Polar Sea. Our lines, which were weak and not very suitable for this purpose, were soon so worn by friction, corrosion, oxidation, etc., that we were compelled not only to use them most cautiously, but also to limit the number of soundings far more than was desirable. It sometimes happened that the line would break while being hauled in, so that a good deal of it was lost.

The first sounding after the departure of Dr. Nansen and Johansen was taken on April 23rd. We thought we should be able to lower away down to 3,000 metres (1,625 fathoms) in one run, but as the line commenced to slacken at 1,900 metres (1,029 fathoms) we thought we had touched bottom and hauled the line up again. As it appeared that the line had not reached the bottom, we now let down 3,000 metres of line (1,625 fathoms), but in doing so we lost about 900 metres of line (487 fathoms). Accordingly I assumed that we had touched ground at 2,100 metres (1,138 fathoms), and I therefore lowered the line to that depth without touching bottom. The next day we took new soundings at depths of 2,100,

2,300, 2,500, and 3,000 metres respectively (1,137, 1,245, 1,353, and 1,625 fathoms), but all without touching bottom. On the third day, April 25th, we sounded first at 3,000 metres, and then at 3,200 metres (1,625 and 1,733 fathoms) without touching bottom. The steel-line being too short we had to lengthen it with a hemp-line, and now went down to 3,400 metres (1,841 fathoms). While hauling up we perceived that the line broke, and found that, in addition to the 10 fathoms length of hemp-line we had lost about 275 fathoms of steel-line. We then stopped taking soundings till July 22nd, as the hemp-lines were so badly worn that we dared not venture to use them again until milder weather set in.

Wind and weather were, of course, a favourite topic on board the *Fram*, especially in connection with our drift. As is but right and proper, we had a weather prophet on board, to wit, Pettersen. His speciality was to predict fair wind, and in this respect he was untiring, although his predictions were by no means invariably fulfilled. But he also posed as a prophet in other departments, and nothing seemed to delight him more than the offer of a bet with him on his predictions. If he won he was beaming with good humour for days at a stretch, and if he lost he often knew how to shroud both his forecast and the result in oracular mystery and darkness so that both parties appeared to be right. At times, as already hinted, he was unlucky, and then he was mercilessly chaffed; but at other times he would have a run

PRESSURE MOUND NEAR THE FRAM. APRIL, 1895.

of astounding luck, and then his courage would rise to such an extent that he was ready to prophecy and bet about anything.

Among his great misfortunes was a bet made with the mate on May 4th that we should have land in sight by the end of October. And on May 24th he made a bet with Nordahl that by Monday night (the 27th) we should be at 80° E. long. Needless to say we all wished that his incredible predictions might come true; but alas! the miracle did not happen, for it was not until June 27th that the *Fram* passed the 80th degree of longitude.

During the later part of May the sun and the spring weather commenced to disperse the layer of snow around the vessel to such an extent as to make quite a little pond of snow water on the ice forward. As at that part especially, but also all along the side of the vessel, the snow was full of soot, refuse, and the clearings from the kennels, it was greatly to be feared that an injurious, or at any rate, obnoxious smell might arise, and if, besides this, as was the case last year, a pond should form round the vessel, the water in it would be too impure to be used in flushing the deck. I therefore set all hands to work to cart away the snow from the starboard side—a job which took about two days.

The setting in of spring now kept us busy with various things for some time, both on board and on the ice. One of the first things to be done was to bring our

depôt safely on board, as lanes and rifts were now forming more frequently in the ice, and some of the goods in the depôt would not bear exposure to damp.

The action of the sun's rays on the awning or tent soon became so strong that the snow underneath the boats and on the davits began to melt. All snow and ice had therefore to be removed or scraped away not only under the awning but also under the boats, on the deck-house, in the passage on the starboard side, in the holds and wherever else it was necessary. In the after-hold there was much more ice now than last winter, probably owing to the fact that we had kept the saloon much warmer this winter than before.

In the saloon, the library and the cabins we had a thorough "spring cleaning." This was very badly needed, as the ceilings, walls, and all the furniture and fittings, in the course of the long Polar night, had got covered with a thick grimy-looking coating composed of soot, grease, smoke, dust and other ingredients.

I myself took in hand the paintings in the saloon and in my own cabin, which little by little had assumed the same dusky ground tint as their surroundings, and on the whole looked rather enigmatic. By dint of much labour, and the application of a liberal supply of soap and water, I succeeded in restoring them to something like their pristine beauty.

We finished our general clean-up on Whitsun Eve, June 1st, and thus spent a really comfortable Whitsun-

tide with butter-porridge for supper, and a few extra delicacies afterwards.

After Whitsuntide, we again took in hand various things required in view of the season, and of the possibility that the *Fram* might get afloat in the course of the summer. On the great hummock were many things I thought might be left there for the present; for instance, the greater part of our dogs' food. The cases containing this were piled up to four different heights so as to form a sloping roof off which the water could easily run, and I had the whole covered over with tarpaulin. The long-boat on the port side, which I proposed to leave on the ice till the winter, was deposited in a safe place about 50 yards from the ship, and provided with sails, rigging, oars, and a full equipment, ready for any emergency.

The scraping away of the ice in the holds and on the half-deck was finished on June 12th. We tried to cut the steam-pipe aft (the pipe for rinse-water) out of the ice, but had to abandon the attempt. One end of this pipe had been resting ever since last year on the ice, and it was now so deeply frozen in that we could not release it. We cut a hole all round it 4 feet deep, but the hole quickly filled with water, so we left it to the summer heat to thaw the pipe loose.

So much water commenced to accumulate in the engine-room about this time that we had to bale out considerable quantities—certainly 130 gallons per day.

We at first thought that the water was produced by the thawing of the ice on board, but it subsequently appeared that it was mainly due to leakages, which probably arose from the fact that ice forming in the different layers of the ship's skin forced the planking somewhat apart.

The state of health continued excellent, and the doctor had virtually nothing to do in his professional capacity. In the way of "casualties" there were only a few of the most trifling nature, such as a frozen big toe, a little skin-chafing here and there, a sore eye or two; that was all. However, we led a very regular life, with the 24 hours suitably distributed between work, exercise, and rest. We slept well and fed well, and so we were very little concerned at the fact that when being weighed on May 7th we were found to have lost flesh. However, the falling off was not great; the aggregate weight of the whole party was barely 8 lbs. less than the month before.

There was, however, one complaint that we suffered from, a contagious one, though not of a dangerous nature. It became a fashion, or, if you like, a fashionable complaint, on board the *Fram*, to shave one's head. It was said that an infallible method of producing a more luxuriant growth of hair was to shave away the little hair that still adorned the head of the patient. Juell first started it, and then a regular mania set in, the others following his example one by one, with the exception of

ICE-SMITHY. MAY, 1895.

myself and one or two more. Like a cautious general, I first waited a while to see whether the expected harvest sprouted on my comrades' shaven polls ; and as the hair did not seem to grow any stronger than before, I preferred a recipe ordered by the doctor, viz., to wash the head daily with soft soap and subsequently rub in an ointment. To make this treatment more effectual, however, and let the ointment get at the scalp, I followed the example of the others and shaved my head several times. Personally I do not believe that the process did any good, but Pettersen was of a different opinion. "The deuce take me," said he, one day afterwards when cutting my hair, "if the Captain hasn't got some jolly strong bristles on his crown after that treatment."

May 17th brought the finest weather that could be imagined. A clear, bright sky, dazzling sunshine, 10° to 12° of cold and an almost perfect calm. The sun, which at this time of the year never sets throughout the 24 hours, was already high in the heavens, when at 8 a.m. we were awakened by the firing of a gun and by joyous strains on the organ. We jumped into our clothes more speedily than usual, swallowed our breakfast, and with the liveliest expectation prepared for what was in store ; for the "Festival Committee" had been very busy the previous day. Punctually at 11 o'clock the various corporations assembled under their flags and insignia, and were assigned their position in the grand procession. I marched at the head with the

Norwegian flag. Next came Scott-Hansen with the *Fram's* pennant, and then followed Mogstad with the banner of the Meteorological Department, richly bedecked with "cyclonic centres" and "prospects of fair weather." He was seated on a box covered with bearskin placed on a sledge drawn by seven dogs, the banner waving behind him on a pole rigged as a mast. Amundsen was No. 4, bearing a demonstration banner in favour of "the Pure Flag," and he was followed by his esquire, Nordahl, on snowshoes with a spear in his hand and a rifle slung on his back. The flag showed on the red ground a picture of an old Norwegian warrior breaking his spear over his knee, with the inscription "Onward, Onward, [Fram, Fram!] ye Norsemen! Your own flag in your own land. What we do we do for Norway." Fifth in the procession came the mate, with the Norwegian Arms on a red background, and sixth was Pettersen with the flag of the Mechanical Department. Last came the "Band" represented by Bentzen with an accordion. The procession was followed by the public dressed in their best, viz., the Doctor, Juell, and Henriksen in picturesque confusion.

To the waving of banners and strains of music the procession wended its way past the corner of the University (viz., the *Fram*) down "Karl Johan's Street" and "Church Street" (a road laid out by Scott-Hansen for the occasion across the rift in front and the pressure-ridge) past Engebret's (the depôt on the ice) and then

THE PROCESSION. 17 MAY, 1895.

wheeled round to the "Fortification Parade,"* viz., the top of the great hummock, where it stopped and faced round with flags erect.

There I called for cheers in honour of the festive occasion, in response to which there rose a ninefold hurrah from the densely-packed multitude.

At exactly 12 o'clock the official salute of May 17th was fired from our big bow guns. Then came a splendid banquet; the Doctor had contributed a bottle of aqua vitæ, and every man had a bottle of genuine Crown Malt Extract, from the "Royal Brewery" in Copenhagen.

When the roast was served Scott-Hansen proposed the health of our dear ones at home and of our two absent comrades, who he hoped might achieve the task they had set themselves and return home safely. This toast was accompanied by a salute of two guns.

At 4 p.m. a great popular festival was held on the ice. The place was prettily decorated with flags and other emblems, and the programme offered a rich variety of entertainments. There was rope dancing, gymnastics, shooting at running hares, and many other items. The public were in a highly festive mood throughout and vigorously applauded the artists in all their performances. After a supper which was not far behind the dinner in excellence, we gathered at night in the saloon around

* These are well known localities in Christiania—Engebret's being a restaurant.

a steaming bowl of punch. The Doctor, amid loud applause, proposed the health of the organising committee, and I proposed the *Fram*. After this we kept it up in the merriest and most cordial spirit until far into the night.

CHAPTER II.

June 22nd to August 15th, 1895.

As spring advanced, the disturbance in the ice increased, and new lanes and pools were formed in every direction. At the same time there was a daily increase in the number of aquatic animals and birds around us.

On the night of June 22nd I was awakened by the watch, who told me that there were whales in the lane on the starboard side. Everyone hurried on deck, and we now saw that some seven or eight female narwhals were gambolling in the channel close upon us. We fired some shots at them, but these did not seem to take effect. Later in the day I went after them in the sealing-boat, but without getting within range. In order to be able to give effectual chase, should they, as we hoped, pay us a visit in the future, we made ready two harpoon-bladders and an oak anchor, which we attached to the end of the harpoon line. Should the whale, when harpooned, prove too strong for us, we would let go the anchor and the bladders, and if the fates were not against us, we might be successful.

We were quite anxious to try the new apparatus, and therefore kept a sharp look-out for the whales. One or two were seen occasionally in the channel, but they disappeared again so quickly that we had no time to pursue them. On the evening of July 2nd we had the prospect of a good hunt. The lane swarmed with whales, and we quickly started out with the boat in pursuit. But this time, too, they were so shy that we could not get at them. One of them remained some time in a small channel, which was so narrow that we could throw across it. We attempted to steal on him along the edge, but as soon as we had got within a short distance of him he took alarm, and swam out into the large channel, where he remained rolling about, turning over on his back for some four or five minutes at a time with his head above water, puffing away, and positively jeering at us. When at length we had wearily worked our way back again to the large channel, intending to assist him a little in his performances—pop, away he went.

Some days later we again received a visit from a troupe of these comedians in another channel newly formed in close proximity to the vessel. Three of them had long, heavy tusks, which they now showed high above the water, and then used to scratch their female friends on the back with. We immediately prepared ourselves with rifles and harpoons, and ran towards the channel as fast as our legs would carry us. But before

CHANNEL ASTERN OF THE FRAM. JUNE, 1895.

we got there the beasts had fled. It was of no use trying to get within range of these shy creatures, so, after that, as a rule, we allowed them to remain unmolested.

Once, however, during the spring of 1896, we were near catching a narwhal. I had been out fowling, and was just busily taking out of the boat the birds I had shot, when suddenly a narwhal appeared in the channel close to our usual landing-place, where the harpoon with the line attached lay ready for immediate use. I quickly seized the harpoon, but the coil of line was too short, and when I had got this right the whale dived below the water, just as I was ready to harpoon him.

An occasional large seal (*Phoca barbata*) also appeared at this time; we chased them sometimes, but without success; they were too shy.

With the fowling our luck was better, and so early as June 7th we shot so many black guillemots, gulls, fulmars, and little auks, that we partook on that day of our first meal of fresh meat during the year. The flesh of these birds is not, as a rule, valued very much, but we ate it with ravenous appetite, and found that it had an excellent flavour—better than the tenderest young ptarmigan.

One day three gulls appeared, and settled down at some distance from the vessel. Pettersen fired twice at them and missed, they meanwhile resting calmly on the snow, and regarding him with intense admiration. Finally they flew away, accompanied by sundry blessings from

the hunter, who was exasperated at his "mishap," as he called it. The eye-witnesses of the bombardment had another idea of the "mishap," and many were the jokes that rained down upon the fellow when he returned empty-handed.

However, Pettersen soon became an ardent sportsman, and declared that one of the first things he would do when he returned home would be to buy a fowling-piece. He appeared to have some talent as a marksman, though he had hardly ever fired a shot before he came on board the *Fram*. Like all beginners, he had to put up with a good many misses before he got so far as to hit his mark. But practice makes perfect; and one fine day he began to win our respect as a marksman, for he actually hit a bird on the wing. But then came a succession of "mishaps" for some time, and he lost faith in his power of killing his game on the wing, and sought less ambitious outlets for his skill. Long afterwards the real cause of his many bad shots came to light. A wag, who thought that Pettersen was doing too much execution among the game, had quietly re-loaded his cartridges, so that Pettersen had all the time been shooting with salt instead of lead, and that, of course, would make a little difference.

Besides the animals named, it appears that Greenland sharks are also found in these latitudes. One day Henriksen went to remove the blubber from some bear-skins, which he had had hanging out in the channel for a

week or so; he found that the two smallest skins had been nearly devoured, so that only a few shreds were left. It could hardly have been any other animal than the Greenland shark which had played us this trick. We put out a big hook with a piece of blubber on it, to try if we could catch one of the thieves, but it was of no use.

One day in the beginning of August the mate and Mogstad were out upon the ice trying to find the keel of the petroleum launch, which had been forgotten. They said that they had seen fresh tracks of a bear, which had been trotting about the great hummock. It was now almost a year since we last had a bear in our neighbourhood, and we felt, therefore, much elated at the prospect of a welcome change in our bill of fare. For a long time, however, we had nothing but the prospect. True, Mogstad saw a bear at the large hummock, but, as it was far off to begin with, and going rapidly further, it was not pursued. Almost half-a-year elapsed before another bear paid us a visit—it was not till February 28th, 1896.

As I said before, the *Fram* had, ever since the first week in May, been fast imbedded in a large floe of ice, which daily diminished in extent. Cracks were constantly formed in all directions, and new lanes were opened, often only to close up again in a few hours. When the edges of the ice crashed against each other with their tremendous force, all the projecting points

were broken off, forming smaller floes, and pushed over and under each other, or piled up into large or small hummocks, which would collapse again when the pressure ceased, and break off large floes in their fall. In consequence of these repeated disturbances the cracks in our floe constantly increased, particularly after a very violent pressure on July 14th, when rifts and channels were formed right through the old pressure-ridge to port, and close up to the side of the vessel, so that it appeared for a time as if the *Fram* would soon slip down into the water. For the time being, however, she remained in her old berth, but frequently veered round to different points of the compass during all these disturbances in the ice. The great hummock, which constantly increased its distance from the vessel, also drifted very irregularly, so that it was at one time abeam, at another right ahead.

On July 27th there was a disturbance in the ice such as we had not experienced since we got fast. Wide lanes were formed in every direction, and the floe upon which the smith's forge was placed danced round in an incessant whirl, making us fear we might lose the whole apparatus at any moment. Scott-Hansen and Bentzen, who were just about to have a sail in the fresh breeze, undertook to transport the forge and all its belongings to the floe on which we were lying. They took two men to help them, and succeeded, with great difficulty, in saving the things. At the same time there was a violent disturbance in the water around the vessel. She turned

Scott-Hansen. Nordahl.

MOVABLE METEOROLOGICAL STATION ON THE ICE. JULY, 1895.

(From a photograph.)

round with the floe, so that she rapidly came to head W. half S., instead of N.E. All hands were busy getting back into the ship all the things which had been placed upon the floes, and this was successfully accomplished, although it was no trifling labour, and not without danger to the boats owing to the strong breeze and the violent working of the floes and blocks of ice. The floe with the ruins of the forge was slowly bearing away in the same direction as the large hummock, and served for some time as a kind of beacon for us. Indeed, in the distance it looked like one, crowned as it was on its summit with a dark skull-cap, a huge iron kettle, which lay there bottom upwards. The kettle was originally bought by Trontheim, and came on board at Khabarova together with the dogs. He had used it on the trip through Siberia for cooking the food for the dogs. We used to keep blubber and other dogs' food in it. In the course of its long service the rust had eaten holes in the bottom, and it was therefore cashiered, and thrown away upon the pressure-ridge close to the smithy. It now served, as I have said, as a beacon, and is perhaps to-day drifting about in the Polar Sea in that capacity—unless it has been found and taken possession of by some Eskimo housewife on the east coast of Greenland.

As the sun and mild weather brought their influence to bear upon the surface of the ice and the snow, the vessel rose daily higher and higher above the ice, so

that by July 23rd, we had three and a half planks of the greenheart ice-hide clear on the port side and ten planks to starboard. In the evening of August 8th our floe cracked on the port, and the *Fram* altered her list from 7° to port to 1·5° starboard side, with respectively four and two planks of the ice-hide clear, and eleven bow irons clear forward.

I feared that the small floe in which we were now embedded might drift off down the channel if the ice slackened any more, and I therefore ordered the mate to moor the vessel to the main flow, where many of our things were stored. The order, however, was not quickly enough executed, and when I came on deck half-an-hour later the *Fram* was already drifting down through the channel. All hands were called up immediately, and with our united strength we succeeded in hauling the vessel up to the floe again and mooring her securely.

As we were desirous of getting the *Fram* quite clear of the ice-bed in which she had been lying so long, I determined to try blasting her loose. The next day, therefore, August 9th, at 7.30 p.m., we fired a mine of about 7 lbs. of gunpowder, placed under the floe six feet from the stern of the vessel. There was a violent shock in the vessel when the mine exploded, but the ice was apparently unbroken. A lively discussion arose touching the question of blasting. The majority believed that the mine was not powerful enough; one even maintained that the quantity of gunpowder used should have been 40

or 50 lbs. But just as we were in the heat of the debate the floe suddenly burst. Big lumps of ice from below the ship came driving up through the openings; the *Fram* gave a great heave with her stern, started forward and began to roll heavily, as if to shake off the fetters of ice, and then plunged with a great splash out into the water. The way on her was so strong that one of the bow hawsers parted, but otherwise the launch went so smoothly that no shipbuilder could have wished it better. We moored the stern to the solid edge of ice by means of ice-anchors, which we had recently forged for this purpose.

Scott-Hansen and Pettersen, however, were very near getting a cold bath. Having laid the mine under the floe, they placed themselves abaft with the "pram"* in order to haul in the string of the fuze. When the floe burst, and the *Fram* plunged, and the remainder of the floe capsized as soon as it became free of its 600 tons burden, the two men in the boat were in no pleasant predicament right in the midst of the dangerous maelstrom of waves and pieces of ice; their faces, especially Pettersen's, were worth seeing while the boat was dancing about with them in the caldron.

The vessel now had a slight list to starboard (0·75°), and floated considerably lighter upon the water than before, as three oak planks were clear to starboard, and

* A small keel-less boat.

somewhat more to port, with nine bow-irons clear forward. So far as we could see her hull had suffered no damage whatever, either from the many and occasionally violent pressures to which she had been subjected, or from the recent launching.

The only fault about the vessel was that she still leaked a little, rendering it necessary to use the pumps frequently. For a short time, indeed, she was nearly tight, which made us inclined to believe that the leakage must be above the water-line, but we soon found we were in error about this, when she began to make more water than ever.

For the rest, she was lying very well now, with the port side along an even and rather low edge of ice, and with an open channel to starboard; the channel soon closed up, but still left a small opening, about 200 yards long and 120 yards wide. I only wished that winter would soon come, so that we might freeze securely into this favourable position. But it was too early in the year, and there was too much disturbance in the ice to allow of that. We had still many a tussle to get through before the *Fram* settled in her last winter haven.

Our drift westward in the latter half of June and the greater part of July was on the whole satisfactory. I give the following observations :—

Scott-Hansen. Nordahl.

OBSERVATION WITH SEXTANT AND ARTIFICIAL HORIZON. JULY 1895.

(From a photograph.)

Date.	Latitude.	Longitude.	Direction of Wind.
	° ′	° ′	
June 22nd .	84 32	80 58	N.
June 27th .	84 44	79 35	N. by E.
June 29th .	84 33	79 50	E.N.E.
July 5th .	84 48	75 3	S.E.
July 7th .	84 48	74 7	W.S.W.
July 12th .	84 41	76 20	W.S.W.
July 22nd .	84 36	72 56	N.N.W.
July 27th .	84 29	73 49	S.W. by S.
July 31st .	84 27	76 10	S.W.
August 8th .	84 38	77 36	N.W.
August 22nd .	84 9	78 47	S.W.
August 25th .	84 17	79 2	E. by N.
September 2nd .	84 47	77 17	S.E.
September 6th .	84 43	79 52	S.W.

As it will be seen from the above, there were comparatively small deviations towards the south and the north in the line of the drift, whereas the deviations to east and west were much greater.

From June 22nd to the 29th it bore rapidly westwards, then back some distance in the beginning of July; again for a couple of days quickly towards the west, and then a rapid return till July 12th. From this day until the 22nd we again drifted well to the west, to 72° 56′, but from that time the backward drift predominated, placing us at 79° 52′ on September 6th, or about the same longitude as we started from on June 29th.

During this period the weather was, on the whole, fair and mild. Occasionally we had some bad weather, with

drift-snow and sleet, compelling us to stay indoors. However, the bad weather did not worry us much; on the contrary we looked rather eagerly for changes in the weather, especially if they revived our hopes of a good drift westwards, with a prospect of soon getting out of our prison. It must not be understood that we dreaded another winter in the ice before getting home. We had provisions enough, and everything else needful to get over some two or three polar winters, if necessary, and we had a ship in which we all placed the fullest confidence, in view of the many tests she had been put to. We were all sound and healthy, and had learned to stick ever closer to one another for better and for worse.

With regard to Nansen and Johansen hardly any of us entertained serious fears; however dangerous their trip was, we were not afraid that they would succumb to their hardships on the way, and be prevented from reaching Franz Josef Land, and thence getting back to Norway before the year was out. On the contrary, we rejoiced at the thought that they would soon be home telling our friends that we were getting on all right, and that there was every prospect of our return in the autumn of 1896. It is no wonder, however, that we were impatient, and that both body and soul suffered when the drift was slow, or when a protracted contrary wind and back-drift seemed to make it highly improbable that we should be able to reach home by the time we were expected.

Furthermore, the most important part of our mission was in a way accomplished. There was hardly any prospect that the drift would carry us much further northward than we were now, and whatever could be done to explore the regions to the north, would be done by Nansen and Johansen. It was our object, therefore, in compliance with the instructions from Dr. Nansen, to make for open water and home by the shortest way and in the safest manner, doing, however, everything within our power to carry home with us the best possible scientific results. These results, to judge from our experience up to this point, were almost a foregone conclusion: to wit, that the Polar Sea retained its character almost unchanged as we drifted westwards, showing the same depths, the same conditions of ice and currents, and the same temperatures. No islands, rocks, shoals, and, still less, any mainland, appeared in the neighbourhood of our frequently irregular course; wherever we looked there was the same monotonous and desolate plain of more or less rugged ice, holding us firmly, and carrying us willy-nilly along with it. Our scientific observations were continued uninterruptedly, as regularly and accurately as possible, and comprised, besides the usual meteorological observations, soundings, measurement of the thickness of the ice, longitude and latitude, taking the temperature of the sea at various depths, determining its salinity, collecting specimens of the fauna of the sea, magnetic and electrical observations, and so forth.

CHAPTER III.

August 15th, 1895, to January 1st, 1896.

With the rise in the temperature the snow surface became daily worse, so that it was seldom fit for snow-shoeing; even with "truger"* on it was most laborious to get along, for the snow was so soft that we sank in up to our knees. Now and then for an odd day or so the surface would be fit, even in the month of July, and we took these opportunities of making short excursions for shooting and the like. Then the surface would be as bad as ever again, and one day when I had to go out on the ice to fetch a fulmar which had been wounded, the snow was so soft that I constantly sank in up to my waist. Before I could reach the bird the whole pack of dogs came tearing by, got hold of it, and killed it. One of the dogs seized the bird in his mouth, and then there was a wild race between it and the others. At last the whole pack turned back towards the lane in the ice again, and I watched my opportunity and snatched the

* A round wicker snowshoe like a basket-lid.

bird from them. I had paid pretty dearly for my booty, all spent and dripping with perspiration as I was from plodding through that bottomless morass of snow.

Our chief occupation was still the work at our sledges and kayaks. The sledges, which were all brought on board from the great hummock where they had lain all the winter, were repaired and fitted with runners. By July 16th they were all in good order—eight hand sledges and two dog-sledges.

The kayaks, upon which we had long been engaged, were finished about the same time. We had now in all five double and one single kayak. Of these I myself made one, the single kayak, which weighed 32 lbs. All of them were tested in the channel and proved sound and watertight. Both the kayaks and the sledges were hoisted on the davits, so that they could be let down at a moment's notice in case of need.

The petroleum launch, which was of no use to us as it was, but would afford good materials for runners and other things, was brought from the great hummock and taken to pieces. It was built of choice elm, and a couple of planks were immediately used for runners to those of the sledges, which, for lack of material, were as yet unprovided with these appliances.

The medicine chest, which had also lain in depôt at the great hummock, was fetched and stowed away in one of the long-boats, which had been placed on the pressure-ridge hard by the ship. The contents had taken no

harm, and nothing had burst with the frost, although there were several medicines in the chest which contained no more than 10 per cent. of alcohol.

At that time we were also busy selecting and weighing provisions and stores for eleven men for a seventy days' sledging expedition and a six months' sojourn on the ice. The kinds of provisions and their weight will be seen from the accompanying table.

Seventy Days' Sledge Provisions for Eleven Men.

	Lbs.
Cadbury's chocolate, 5 boxes of 48 lbs.	240
Meat chocolate	25
Wheaten bread, 16 boxes of 44 lbs.	704
Danish butter, 12 tins of 28 lbs.	336
Lime-juice tablets	2
Fish-flour (Professor Vaage's)	50
Viking potatoes, 3 tins of 26 lbs.	78
Knorr's pea-soup	5
„ lentil-soup	5
„ bean-soup	5
Bovril, 2 boxes	104
Vril food, 1 box	48
Oatmeal, 1 box	80
Serin powder, 1 tin	50
Aleuronate bread, 5 boxes of 50 lbs.	250
Pemmican, 6 boxes	340
„ 7 sacks	592
Liver, 1 sack	102
Total	3,016

Besides these we took salt, pepper, and mustard.

PROVISIONS FOR ELEVEN MEN DURING A SIX MONTHS' STAY ON THE ICE.

	Lbs.
Roast and boiled beef, 14 tins of 72 lbs.	1,008
Minced collops, 3 tins of 48 lbs.	144
Corned beef, 3 tins of 84 lbs.	252
Compressed ham, 3 tins of 84 lbs.	252
Corned mutton, 17 tins of 6 lbs.	102
Bread, 37 tins of 50 lbs.	1,850
Knorr's soups, various, 2 tins of 56½ lbs.	113
Vegetables: white cabbage; julienne; pot-herbs	60
Flour, sugar, 3 cases of 40 lbs.	120
Oatmeal, 4 cases of 80 lbs.	320
Groats, 4 cases of 80 lbs.	320
Cranberry, 2 cases of 10 lbs.	20
Margarine, 20 jars of 28 lbs.	560
Lunch tongue, 1 case	20
Danish butter, 2 cases	336
Stearine candles, 5 cases	200
Preserved fish, 1 tin	22
Macaroni, 1 case	50
Viking potatoes, 4 cases	208
Vaage's fish-flour, 2 cases	200
Frame-food jelly, 1 jar	190
Marmalade jelly, 1 jar	54
Lime-juice jelly, 1 jar	54
Cadbury's chocolate, 3 cases	144
Lactoserin cocoa, 1 case	18
Milk, 10 cases of 48 tins	480
Tea, 1 case	20
English pemmican, 13 cases	756
Danish pemmican, 1 case	68
Dried liver patties, 3 cases	204
Vril food, 5 cases	208

Besides these, 2 tins of salt, 1 tin of mustard, and 1 tin of pepper.

When all the stores were ready and packed, they were provisionally stowed at certain fixed points on deck, under the awning forward. I did not want them taken out on the ice until later in the year, or until circumstances rendered it necessary. We had still abundance of coal—about 100 tons. I considered that 20 tons would be about enough for six months' consumption on the ice. With that quantity, therefore, we filled butts, casks, and sacks, and took it out on the ice, together with 1,400 lbs. of tinned potatoes, about 45 gallons of petroleum, about 80 gallons of gas-oil, and about 34 gallons of coal-oil.

As the ship was still deeply laden, I wished to lighten her as much as possible, if only it could be managed without exposing to risk any of the stores which had to be unloaded. After the windmill was worn out and taken away we had, of course, no use for the battery and dynamo, so we took the whole concern to pieces and packed it up, with lamps, globes, and everything belonging to it. The same was done with the petroleum-motor. The "horse-mill" was also taken down and put out on the ice, with a lot of heavy materials. One long-boat had been put out earlier, and now we took the other down from the davits and took it up to the great hummock. But as the hummock shortly afterwards drifted a good way off from us, the boat, with everything else that lay there, was brought back again and placed upon the great ice-floe to which we were moored—our

CLEANING THE ACCUMULATORS BEFORE STOWING AWAY. JULY, 1895.

"estate," as we used to call it. On top of the davits, and right aft to the half-deck, we ran a platform of planks, on which the sledges, kayaks, and other things were to be laid up in the winter.

On July 22nd we continued our deep-sea soundings, taking two on that day, the first to 1,354 fathoms (2,500 metres) and the second to 1,625 fathoms (3,000 metres), without touching bottom either time. In order to make sure that the lead should sink, we lowered away the line very slowly, so that it took two hours and a quarter to reach a depth of 3,000 metres. On the 23rd we again took two soundings, one of 1,840 fathoms (3,400 metres) without finding bottom, and then one in which we found bottom at 2,056 fathoms (3,800 metres). It took two hours and a half to lower the lead to the latter depth. Finally, on July 24th we again took a sounding of 3,600 metres without finding bottom, and therefore concluded the depth to be from 3,700 to 3,800 metres.

On July 7th the doctor rowed out in the "pram" in search of algæ, but came back empty-handed. There were remarkably few algæ to be found this summer, nor did there seem to be so much animal life in the water as there had been the year before.

For a few days after she got loose, the *Fram* lay in a very good position in the pool; but during the night of August 14th a high block of ice came floating down the lane, which had now widened a little, and jammed itself between the ship's side and the further edge of the pool,

which it thus entirely blocked. As we did not like having this uncomfortable and dangerous colossus close at our side, in case we should remain at the same spot throughout the autumn and winter, we determined to blast it away. Scott-Hansen and Nordahl at once took this in hand, and accomplished the task after several days' labour.

On Saturday afternoon, August 17th, a pretty strong ice-pressure suddenly set in around us. In the course of a few minutes the *Fram* was lifted 22 inches by the stern, and 14 inches by the bow. In stately fashion, with no noise, and without heeling over in the least, the heavy vessel was swiftly and lightly raised, as if she had been a feather—a spectacle at once impressive and reassuring.

The next day the ice slackened a little again, and the ship was once more afloat. So it lay quietly until the morning of the 21st, when another strong pressure began. The ship now lay in a very awkward position, with a high hummock on each side, which gripped her amidships for a space of about 9 yards, and screwed her up 6 or 8 inches. But the pressure ended in half an hour or so, and the *Fram* sank again into her former berth.

When there were symptoms of pressure we always tried to warp the ship as far away as possible from the threatening point, and occasionally we succeeded. But during the stormy weather, with southerly winds, which prevailed at this time, it was often quite impossible to get her to budge; for she offered a great surface to the wind, with her heavy rigging and the high awning

forward. Our united forces were often unable to move her an inch, and ice-anchors, moorings, and warping-cables were perpetually breaking.

At last, on August 22nd, we succeeded in warping the ship along a bit, so that we might hope to escape pressure if the ice should again begin to pinch. As the ice soon after slackened a good deal, and became more broken than before, we some days later made another attempt to haul her a little further, but had soon to give it up; there was not enough space between the two great floes on either hand of us. We now lay at the same spot until September 2nd, with half a gale blowing continually from the south-west and with heavy rain now and then. On the evening of August 30th, for instance, we had a violent rain-storm, which loosened the ice-coating of the rigging and made a frightful racket as it brought the pieces of ice clattering down upon the deck, the deck-house, and the awning.

Our "estate" was very thoroughly ploughed, harrowed, and drained at this time by wind, rain, pressure, and other such doughty labourers. Then came the tiresome business of moving the things out from the ship, which involved the cutting up and parcelling out of almost the whole "estate," so that what was left open to us was scanty and cramped enough.

Thus reduced, the "estate" now formed an approximately oblong floe, with its greatest length from east to west, and surrounded on all sides by more or less

open rifts and lanes. The *Fram* lay moored to the north side close to the north-east point, with her bow heading west. Immediately astern of her, and separated from the point only by a narrow lane, lay a large floe, upon which was stowed, among other things, a part of our provision of coal. Far off to the westward the great hummock still lay drifting.

While the other sides of the "estate" were pretty nearly straight, the east side formed a concave arc or bay, which offered an excellent winter berth for the *Fram*. But there was no possibility of getting the ship into it so long as the channel between the "estate" and the floe to eastward remained closed. Late in the afternoon of September 2nd the ice at last slackened so much that we could make an attempt. By the help of our tackle, we managed to get her warped a ship's length eastwards, but it was impossible for the moment to get her any further, as the new ice was already pretty thick (the night temperature was $-5°$ C.), and also a good deal packed. Nor was it any use to bring the ice-saw into play and cut a channel, for the slush was so deep that we could not shove the fragments aside or under each other.

The next day began with half a gale from the south-east and rain; but at 6 o'clock the wind moderated and veered to the south, and at 8 o'clock the ice around the lane began to slacken a good deal. As there was now more room, we made good progress with

cutting our way through the new ice, and before midday we had got the *Fram* hauled into the bay and moored in the winter harbour which we all hoped might prove her last.

When Nansen and Johansen set out, they left seven dogs behind, the bitch "Sussi" and the six youngest puppies: "Kobben," "Snadden," "Bella," "Skvint," "Axel," and "Boris." On April 25th "Sussi" gave birth to twelve puppies. We had made a cosy little kennel for her on deck, lining it with reindeer skin. Pettersen came down in the morning, and told us that "Sussi" was running round whining and howling. Mogstad and I went up and shut her into the kennel, where she at once gave birth to a puppy. When the afternoon came, and we saw that more and more citizens were being added to our community, we feared that the mother would not be able to warm all her litter, and consequently removed the whole family into the saloon. All the puppies were large and handsome, most of them quite white, and looking as though they would turn out regular little "bjelkier," as the Samoyedes call all white dogs. They grew and throve excellently as saloon passengers, and were petted and spoiled by every one. They made their home in the saloon for a month, and then we transferred them to the above-mentioned kennel on deck. After they had been up there for some weeks, it appeared as though they had suddenly stopped growing, although they were con-

stantly well fed with raw bear's flesh, milk, and the broken meat from our table. About the second week of August two of the puppies died of convulsions. The doctor managed to save a third by means of warm baths and careful nursing. At the end of the month another of them was seized with convulsions and died, although it, too, was treated with warm baths and comfortably housed, first in the saloon and afterwards in the work-room.

In the beginning of September, when the frequent rain made things very moist and uncomfortable in the kennel and on deck, we built a kennel out on the ice with a tarpaulin roof and a floor of planks, with plenty of shavings spread over them. While it was being built we let the whole pack of dogs out upon the ice ; but after playing for half an hour the puppies, one after another, began to have convulsions. The attacks passed quickly over, however. We drenched them with soap and water, and then settled them in their new abode.

As the puppies grew older, we had to keep a sharp watch upon them when we let them out upon the ice. They romped and gambolled with such ungovernable glee that it often happened that one or other of them plumped into the water, and had to be laboriously fished out again by the Master of the Hounds for the time being or whoever else happened to be at hand. Moreover, they soon acquired a taste for longer excursions, and followed our tracks far over the ice.

WORKSHOP ON DECK. JULY, 1895.

One day the doctor and I were out photographing. At a considerable distance from the ship we came upon a large pool of fresh water, and took a little rest upon its inviting, mirror-like ice. While we lay there chatting at our ease, we saw "Kobben" coming after us. As soon as he caught sight of us, he stopped and stood wondering what strange creatures we could be. Then we began to creep on all fours towards him; and the moment we did so, "Kobben" found his legs to some purpose. He set off homeward as though he were running for dear life; and even when we got back to the ship and several other puppies met us and knew us, the poor creature was still so panic-stricken that it was a good while before he ventured to come near us.

On September 28th we again lost one of the puppies. It was seized with convulsions and lay whining and howling all day. As the evening advanced, and it became paralysed along one side, there was no hope of saving it, we put an end to its misery. It was pitiful to see how these pretty little creatures suffered when the convulsions came upon them.

On October 9th "Skvint" gave birth to puppies, but as so young an animal could not have brought them up, especially in such a cold season, we allowed her to keep only one of them as an experiment; the others were at once killed. A week later "Sussi" produced a second litter, two he-dogs and nine she. We let her keep the two males and one of the females.

It proved inadvisable to have both the mothers with their families in the same kennel. If one of the mothers went out for a moment, the other at once took all the puppies into her keeping, and then there was a battle royal when the first one returned and wanted to reclaim her property. Something of this sort had, no doubt, occurred one night in the case of "Skvint," whom Henriksen found in the morning lying at the door of the kennel frozen so fast to the ice that it cost us a good deal of trouble to get her loose again. She must have had anything but a pleasant night—the thermometer had been down to — 33° C. (— 27·4° Fahr.)—and her tail was frozen fast to one of her hind legs, so that we had to take her down into the saloon to get her thawed. To obviate such misadventures for the future I had a detached villa built for her where she could be at peace with her child.

One evening, when Mogstad was housing the puppies for the night, two of them were missing. Henriksen and I at once set off with lanterns and guns to hunt for them. We thought that there had been a bear in the neighbourhood, as we had heard a great deal of barking earlier in the day out upon the ice to the east of the ship; but we could find no tracks. After supper we set out again, five of us, all carrying lanterns. After an hour's search along the lanes and up in the pressure-ridges, we at last found the puppies on the other side of a new lane. Athough the new ice on the lane was

strong enough to bear them, they were so terrified after having been in the water that they dared not come over to us, and we had to make a long détour to get hold of them.

In the middle of December we took the youngest puppies on board, as they had now grown so big, and ran away if they were not very closely watched. The gangway was left open at night so that the mothers could come into them from the ice whenever they wanted to.

In respect to temper, there was a great difference between the generation of dogs we had originally taken on board and those we now had. While the former were great fighters, perpetually at feud with each other, and often to the death, the latter were exceedingly quiet and well-behaved, although wild and fierce enough when it came to chasing a bear. Now and then there would be a little squabble among them, but this was rare. "Axel" was the worst of them. Shortly before Christmas, he all of a sudden made a fierce attack upon the unoffending "Kobben," against whom he bore a grudge. But he got the rope's end for supper several times, and that improved his manners amazingly.

During the first half of September the weather was very unsettled, with prevailing westerly and south-westerly winds, a good deal of rain and snow, especially rain, and frequent disturbance in the ice. The frost at night, which sometimes reached 10° or 11°, soon made

the new ice strong enough to bear a man, except just at the stern of the ship, where all the slops were thrown out. Here the ice was much broken up, and formed a thick slush, the surface of which was frozen over, but so thinly that it would not bear much weight. Thus it happened one day that three men got a ducking, one after another, at the same treacherous spot. The first was Pettersen. He had to go round the stern to look to the log-line which hung from the ship's side to port, but before he got so far, down he went through the ice. Shortly after the same thing happened to Nordahl, and half-an-hour later it was Bentzen's turn to plump in. He plunged right up to his neck, but at once bobbed up again like a cork, and scrambled gallantly up on to the edge of the ice without a moment's delay. The observation of the log-line had to be postponed, while a grand changing and drying of clothes took place on board.

On September 15th the ice slackened so much that there was quite a little sea between us and the great hummock. The following day the ice was still so much disturbed that we had to think seriously of fetching back the things which still lay there. About midday I took a walk over towards the hummock to find out a suitable transport-path, and discovered an excellent one. But some hours later, when I set off with men and sledges to fetch back the things, so many lanes had opened around the "estate" that we had to give up the attempt for that day. During the whole of September, and well

on in October, there was almost incessant disturbance in the ice. New lanes opened on all sides, some close to the ship, and there were frequent pressures. The winter harbour we had found proved an excellent one. There was very little disturbance in the bay where the *Fram* was moored, thanks to the new ice we here had around us, of which the pressure was quite inconsiderable. It was quickly broken up, and the fragments forced over or under each other, while the two solid points of the bay bore the brunt of the attacks. Once or twice it seemed as though the *Fram* would be afloat again before the winter finally chained her in its icy fetters. On October 25th, for instance, it slackened so much in the lane nearest us that the ship lay free from the stern right to the fore-chains; but soon the ice packed together again, so that she was once more frozen quite fast. The hardest pressure occurred on October 26th and 27th, but the ship was not very severely attacked. Pressure, however, is more unpleasant in winter, on account of the deafening noise it makes when the ice is hurled against the ship's side. It is quite different in summer, when the ice is more tough and elastic, and the pressure goes on calmly and quietly.

After November 1st a more peaceful period set in; the pressures almost entirely ceased, the cold increased, the wind remained easterly, and we drifted at a steady rate northwards and westwards for the rest of the year.

During the autumn the drift had put our patience to a severe test. Owing to the prevailing westerly winds, it bore steadily eastwards, and day after day we looked in vain for a change. The only thing that kept our spirits up was the knowledge that, if we were going backward, it was slowly, sometimes very slowly, indeed. Even several days of westerly wind did not take us so far to the east, but that a day or two of favourable wind would enable us to make up what we had lost, with something to boot.

September 22nd was the second anniversary of our being frozen in, and the event was celebrated with a little festivity in the evening. We had reason to be satisfied with the second year's drift, since we had advanced nearly double as far as during the first year, and, if this continued, there could scarcely be any doubt that we should get clear of the ice in the autumn of 1896.

As will be seen from the following table, September 22nd also brought us a marked change for the better. On that day the winter drift set in for good, and lasted without intermission through the remainder of the year, so that between that day and the second week in January we drifted from 82° 5′ to 41° 41′ E. long.

Date.	Latitude.	Longitude.	Direction of Wind.
	° ′	° ′	
September 6th, 1895 .	84 43	79 52	S.W.
September 11th, 1895 .	84 59	78 15	E.
September 22nd, 1895 .	85 2	82 5	Calm.
October 9th, 1895 .	85 4	79 30	E.
October 19th, 1895 .	85 45	78 21	E. to N.
October 25th, 1895 .	85 46	73 25	N.E.
October 30th, 1895 .	85 46	70 50	N.N.W.
November 8th, 1895 .	85 41	65 2	E.
November 15th, 1895 .	85 55·5	66 31	E.N.E.
November 25th, 1895 .	85 47·5	62 56	N E. to N.
December 1st, 1895 .	85 28	58 45	E.
December 7th, 1895 .	85 26	54 40	N.E.
December 14th, 1895 .	85 24	50 2	Calm.
December 21st, 1895 .	85 15	47 56	N.E.
December 28th, 1895 .	85 24	48 22	N.W.
January 9th, 1896 .	84 57	41 41	N.

On October 11th we hauled up the log-line and cut a new hole for it in the ice right astern. Hitherto the log had had only 100 metres (54 fathoms) of line, now we gave it 300 metres (162 fathoms).

After the middle of September the cold steadily increased, as the following observations will show.

Date.	Minimum Temperature.	
	Degrees Centigrade.	Degrees Fahrenheit.
September 18th	— 12·5	+ 9·6
September 26th	— 24·0	— 11·2
October 19th . . .	— 30·0	— 22·0
November 5th	— 32·2	— 25·8
November 9th	— 38·3	— 36·8
November 22nd . . .	— 43·6	— 46·4
December 31st	— 44·6	— 48·2

The weather was, as a rule, fine during the last three months of 1895, with clear air and light breezes; only now and then (for example, on October 29th, and November 11th, 26th, and 27th) the wind freshened to half a gale, with a velocity of as much as 48 feet per second.

In the beginning of September we found that the *Fram* was drawing more and more water, so that we had a stiff job every day to pump and bale her empty. But from the 23rd onwards the leakage steadily declined, and about the second week of October the engine-room was quite watertight. It still leaked a little, however, in the main hold; but soon the leak ceased here also, the water having frozen in the ship's side. For the rest, we employed our time in all sorts of work about the ship, cutting up and removing ice in the hold, cleaning, putting things in order, etc.

Mc LAGAN & CUMMING LITH^rs EDINBURGH

AURORA BOREALIS, 18th October 1894. Pastel Sketch.

Not until September 23rd did the state of the ice permit us to carry out our intention of fetching back the things from the great hummock. The surface was that day excellent for sledges with German silver runners; wooden runners, on the other hand, went rather heavily. We had also done some road-making here and there, so that the conveyance of the goods went on easily and rapidly. We brought back to the ship, in all, thirty-six boxes of dog biscuits, and four barrels of petroleum. Next day we brought all that was left, and stacked it on the ice close to the ship.

On September 16th Scott-Hansen and Nordahl set about preparations for building a proper house for their magnetic observations. Their building material consisted of great blocks of new ice, which they piled upon sledges and drove with the aid of the dogs to the site they had chosen. Except for one or two trial trips which Scott-Hansen had previously made with the dogs, this was the first time they had been employed as draught-animals. They drew well, and the carting went excellently. The house was built entirely of hewn blocks of ice, which were ranged above each other with an inward slant, so that when finished it formed a compact circular dome of ice, in form and appearance not unlike a Finn tent. A covered passage of ice led into the house, with a wooden flap for a door.

When this observatory was finished, Scott-Hansen gave a house-warming, the hut being magnificently

decorated for the occasion. It was furnished with a sofa, and with armchairs covered with bear and reindeer-skins. The pedestal in the middle of the floor, on which the magnetic instruments were to be established, was covered with a flag, and an ice-floe served as a table. On the table stood a lamp with a red shade, and along the walls were fixed a number of red paper lanterns. The effect was quite festal, and we all sat round the room in the highest of spirits. Our amiable host addressed little humorous speeches to every one. Pettersen expressed the wish that this might be the last ice-hut Scott-Hansen should build on this trip, and that we might all be home again this time next autumn, and "none the worse for it all." Pettersen's artless little address was received with frantic enthusiasm.

For the rest, Pettersen had just about this time entered upon a new office, having from September 10th onward undertaken the whole charge of Juell's former domain, the galley, a department to which he devoted his whole heart, and in which his performances gave entire satisfaction to every one. The only branch of the culinary art with which he would have nothing to do was the baking of Christmas cakes. This Juell himself had to attend to when the time came.

When winter set in, we built ourselves a new smithy in the place of the one which drifted off on July 27th. It was constructed on the pressure-ridge where the boats and part of the stores from the great hummock had

been placed. Its plan was very much like that of the former smithy. We first hollowed out a cavity of sufficient size in the pressure-ridge, and then roofed it over with blocks of ice and snow.

As the year waned, and the winter night impended, all the sea animals and birds of passage which had swarmed around us and awakened our longings during the short summer deserted us one by one. They set off for the south, towards sunshine and light and hospitable shores, while we lay there in the ice and darkness for yet another winter. On September 6th we saw the last narwhals gambolling in the lanes around the ship, and a few days later the last flock of skuas (*Lestris parasiticus*) took their departure. The sun moves quickly in these latitudes from the first day that he peers over the horizon in the south till he circles round the heavens all day and all night; but still quicker do his movements seem when he is on the downward path in autumn. Before you know where you are he has disappeared, and the crushing darkness of the Arctic night surrounds you once more.

On September 12th we should have seen the midnight sun for the last time if it had been clear; and no later than October 8th we caught the last glimpse of the sun's rim at midday. Thus we plunged into the longest Arctic night any human beings have yet lived through in about 85° N. lat. Henceforth there was nothing that could for a moment be called daylight, and by

October 26th there was scarcely any perceptible difference between day and night.

Whenever time permitted, and the surface was at all favourable, we wandered about on snowshoes in the neighbourhood of the ship, either singly or several together. On October 7th, when all of us were out snowshoeing in the morning, the mate found a log of drift-wood 7 feet long and 7 inches thick. Part of the root was still attached to the trunk. The mate and I went out in the afternoon and brought it in on a hand-sledge. No doubt it had grown in one of the Siberian forests, had been swept away by a flood or by the current of a river, and carried out to sea to be conveyed hither by the drift-ice.

Besides snowshoeing, we also took frequent walks on the ice, and on November 20th I gave orders that every man should take two hours' exercise a day in the fresh air. I myself was very fond of these walks, which freshened up both soul and body, and I would often wander backwards and forwards on the ice four or five hours a day, as a rule two hours in the morning and two in the afternoon.

On October 8th Scott-Hansen and Mogstad made an experiment in dragging sledges with 230 lbs. of freight. They started at half-past nine and returned at five in the afternoon, after having been about four miles from the ship, and traversed pretty heavy country.

We did not believe, indeed, that the *Fram* ran the

slightest risk of being crushed in any ice-pressure; but it was obviously possible, or at least *conceivable*, so that it was our duty to be prepared for all contingencies. Accordingly we devoted much labour and care to securing ourselves against being taken by surprise.

At the end of October we established a new depôt on the ice consisting of provisions for six months, with a full equipment of sledges, kayaks, snowshoes, etc. The provisions were divided into five different piles, and stacked so that the boxes in each pile formed an arch. Thus stored, not more than two cases could well be lost even if the worst happened, and the ice split up right under the heap. The provisions consisted partly of pemmican, as may be seen by the list quoted—a very nutritious article of diet, which makes an excellent sort of Irish stew (lobscouse). With 200 grammes of pemmican, 100 grammes of bread, and 120 grammes of potatoes, you can make a very satisfying and palatable dish.

On November 28th we passed the sixtieth degree of longitude, and celebrated the occasion by a little feast. The saloon was decorated with flags, and a rather more sumptuous dinner than usual was served, with coffee after it; while supper was followed by a dessert of fruits and preserves. This meridian passes near Cape Fligely in Franz Josef Land, and through Khabarova, where we two years ago had bidden farewell to the last faint traces of civilisation. So it seemed as though we really felt ourselves nearer the world and life.

CHAPTER IV.

January 1st to May 17th, 1896.

New Year's Day came with fine, clear weather, moonlight, and about 43 degrees of cold. The ice kept remarkably quiet for about a month, but on February 4th the pressure commenced again. It was not of long duration, but made a great noise while it lasted; the ice all round us roared and screamed as if a tremendous gale were blowing. I took a walk on the ice for the purpose, if possible, of observing the pressure more closely, but could see nothing. The following day we again sallied forth on the ice, and found a comparatively new channel and a large new pressure-ridge about a mile from the ship. It was impossible, however, to get any comprehensive view of the state of the ice, as it was still too dark, even at midday. The surface of the snow was hard and good, but the hollow edges of the snow-drifts were so deceptive, that we every now and then tumbled head over heels.

On February 7th Scott-Hansen, Henriksen, Amundsen, and myself took a run northwards from the

ship. The further north we went, the more broken and uneven the ice became, and at last we had to turn, as we came to a new and wide lane. During the morning a dark bank of clouds had been gathering in the south-west, and now the fog got so thick that it was not easy to find our way back to the ship again. At last we heard the voice of "Sussi," and from the top of a pressure-ridge which we ascended we got sight of the crow's-nest and the main-topmast of the *Fram*, towering above the fog, only a little way off. Close as we were to the ship, it was not so easy to get on board again. We were stopped by a large lane which had formed just abaft the ship during our absence, and we had to skirt it a long way westwards before we could cross it. Those on board told us that the opening of the lane had given the ship a great shock, very much like the shock felt when we blasted the *Fram* loose in August. At 12.30 at night we felt another shock in the ice. When we came on deck we found that the ice had cracked about 30 yards abaft the ship, parallel with the large lane. The crack passed along the side of the nearest long-boat, and right through one of the coal-heaps. On the heap a barrel was standing, which would have been lost if the crack had not divided itself in front of it at about right angles and then joined again, after passing through the outer edges of the heap. On the island thus formed the barrel and some coal-bags floated about in the channel. However, we soon got the island hooked to

shore, and the coals were all saved, with the exception of a sack of 1 cwt., which went to the bottom. By way of making sure, I gave orders that the depôt should be inspected once during each watch, or oftener if the pressure began again.

On February 13th Henriksen, Amundsen, and I made an expedition southwards to examine into the state of the ice in that direction. We found that it was very uneven there, too, and full of comparatively new lanes. The channel abaft the ship widened during the forenoon, and gave off such masses of fog that we soon lost sight of the ship. The next day it opened still more, and on the 16th there was a very strong pressure in it. The ice trembled and roared like a great waterfall, and splintered into small horizontal flakes on the surface. The pressure was repeated almost every day, and more cracks and lanes were constantly to be seen for some time. But after that the ice was comparatively quiet until April 10th, when it again began to be very restless. On the night of the 15th the pressure was very strong in the lane on the port side. We were obliged to haul up the log-line with the bag and shift the sounding apparatus. The same night the ice split under two of the provision depôts, so that we had to get them closer to the ship.

On the morning of the 21st we were awakened by a violent pressure astern. Nordahl came down and woke me, saying that the ice threatened to rush in

over the vessel. We found that a tremendous ice-floe had been pressed up over the edge of the ice astern and came gliding along unchecked until it ran right against our stern. But the *Fram* had borne shocks like this before, and now again she held her own well. The ice was split against the strong stern, and lay shattered on both sides of the ship on a level with the edge of the half-deck all the way forward to the mizzen shrouds. The ship now lay almost loose in her berth, and the ice round about was broken up into a mass of smaller floes. As these were pressed down by the heavy drifts, it was hard work to get round the ship, as one ran the risk of plumping down into the slush at any moment.

Late in the afternoon of May 13th the lane between the forge and the ship began to widen very much, so that in a couple of hours' time it was about 90 yards wide. From the crow's-nest I saw on the south-east a large channel extending southwards as far as I could see, and the channel abaft us extended to the north-east as far as my sight could reach. I therefore went out in the "pram" to try to find a passage through to the channel on the south-east, but without result. After supper I was off again southwards, but I could not find any thoroughfare. At 10 o'clock in the evening I again went up in the crow's-nest, and now saw that the channel had widened considerably and reached away southwards as far as the eye could reach, with dark air over it.

Scott-Hansen and I deliberated as to what was to be

done. Although I did not believe it would do much good under the circumstances, we decided upon an attempt to blast the vessel free. We agreed to try some mines right aft, and all hands were at once put to this work. First we fired six powder-mines at about the same spot, but without much result. Then we made an unsuccessful trial with gun-cotton. At 3 o'clock in the morning we concluded operations for the time being as the ice was so thick that the drill did not reach through, and the slush so bad that it was impossible to get the ice-floes shoved away. At 8 o'clock the next morning we laid two new mines, which Scott-Hansen and Nordahl had made ready during the night, but neither of them would go off. One or two of the mines which we had fired during the day had produced some effect, but so little that it was not worth while to continue. We were obliged to wait for a more favourable condition of the ice.

The weather during the two first weeks of January was settled and good, with clear air and 40 to 50 degrees of cold. The coldest day was January 15th, when the thermometer showed from −50° C. (−58° F.) to −52° C. (−61·6° F.). The last two weeks of January the temperature was considerably higher, but dropped again in February, until on the 13th it was about −48° C. (−54·4° F.), after which it was somewhat higher: about −35° C. (−31° F.) during the remainder of February. On March 5th the thermometer again showed 40° C. of cold; but from that time the temperature rose

PETTERSEN AND BLESSING ON A HUMMOCK. APRIL, 1895.

quickly. Thus on March 12th it was −12° C. (+10·4° F.), on the 27th −6° C. (+21·2° F.), with a few colder days of course now and then. April was somewhat cold throughout, about −25° C. (−13° F.); the coldest day was the 13th, with −34° C. (−29·2° F.). The first week of May was also somewhat cold, about −20° C. (−4° F.) to −25° C. (−13° F.), the second week somewhat milder, about −14° C. (+6·8° F.), and on May 21st we had the first rise above freezing point of this year, the maximum thermometer showing at the evening observation +0·9° C.

Some days during this winter were remarkable for very great and sudden changes in temperature. One instance was Friday, February 21st. In the morning it was cloudy, with a stiff breeze from the south-east. Late in the afternoon the wind suddenly changed to the south-west, and slackened off to a velocity of 14 feet; and the temperature went down from −7° C. (+19·4 F.) in the morning to −25° C. (−13° F.) shortly before the change in the wind, rapidly rising again to −6·2° C. (+20·9° F.) at 8 o'clock p.m.

In my journal I wrote of this day as follows: "I was walking on deck to-night, and before I went down had a look-out astern. When I put my head out of the tent, I felt so warm a current of air that my first thought was that there must be fire somewhere on board. I soon discovered, however, that it was the temperature which had risen so greatly since I was under the open sky.

Scott-Hansen and I afterwards went up and placed a thermometer under the ship's tent, where it showed only — 19° C. (— 2·2° F.), while the thermometer outside showed — 6° C. (+ 21·2° F.). We walked for some time backwards and forwards, and breathed the warm air in deep draughts. It was beyond all description pleasant to feel the mild wind caress one's cheek. Yes, there is a great difference between living in such a temperature and daily breathing an air 40° to 50° below freezing-point. Personally, I am not very much incommoded by it, but many complain that they feel a pain deep in the chest. I only find when I have been taking a good deal of exercise that my mouth is parched."

The following day, February 22nd, it first blew from the S.S.E., but later the wind changed to half a gale from the west, with a velocity of 55 feet per second. The barometer showed the lowest reading during the whole voyage up till then, namely, 723·6 mm. The air was so full of drifting snow that we could not see 6 feet from the ship, and the thermometer-house out on the ice was in a few minutes so packed with drift-snow that it was impossible to read off the instruments. It was not very comfortable down in the saloon, as it was impossible to create any draught. We made unsuccessful attempts to light the stove, but soon had to take the fire away, to prevent suffocation by smoke. Sunday night the storm abated, but on Monday and Tuesday there was again half a gale, with snowfall and drift, and nearly

28 degrees of frost. Not before Wednesday afternoon did the weather improve in earnest; it then cleared up, and the wind slackened to 19 feet 6 inches, so both we and the dogs could get out on the ice and take a little exercise. The dogs wanted to get out of their kennels in the morning, but even they found the weather too bad, and slunk in again.

We had a good many rough-weather days like this, not only in the winter, but also in the summer; but as a rule the rough weather lasted only a day at a time, and did not involve any great discomfort. On the contrary, we had no objection to a little rough weather, especially when it was accompanied by a fresh breeze, that might drift the ice speedily westwards. Of course, what most interested us was the drifting and everything connected with it. Our spirits were often far better in rough weather than on glittering days of clear weather, with only a slight breeze, or a calm and a brilliant aurora borealis at night.

With the drift we had reason to be well satisfied, especially in January and the first week in February. During that time we drifted all the way from the 48th to the 25th degree of longitude, while our latitude kept steady: about 84° 50′. The best drift we had was from January 28th to February 3rd, when there was a constant stiff breeze blowing from the east, which on Sunday, February 2nd, increased to a speed of 58 to 69 feet a second, or even more during squalls. This was, how-

ever, the only real gale during the whole of our voyage. On Saturday, February 1st, we passed the longitude of Vardö, and celebrated the occasion by some festivities in the evening. On February 15th we were in 84° 20′ N. lat. and 23° 28′ E. long., and we now drifted some distance back, so that on February 29th we were in 27° E. long. Afterwards the drift westwards was very slow, but it was better towards the south, so that on May 16th we were at 83° 45′ N. at. and 12° 50′ E. long.

The drift gave occasion to many bets, especially when it was good, and spirits proportionately high. One day at the end of January, when the line showed that we were drifting briskly in the right direction, Henriksen found his voice and said: "We have never made a bet before, Captain; suppose we make a bet now as to how far south we have got." "All right," I said, and we accordingly made a bet of a ration of salmon, I that we were not south of 84° 40′, or between 40′ and 41′, and he that we were between 36′ and 37′. Scott-Hansen then took an observation, and found that Henriksen had lost. The latitude was 84° 40·2′.

Since the last bird of passage left us we had nowher seen a single living creature, right up to February 28th. Not even a bear had been seen during our many rambles on the ice.

At 6 a.m. Pettersen came rushing into the cabin, and told me that he saw two bears near the ship. I hurried up on deck, but it was still so dark that I could not at

once get sight of them, although Pettersen was pointing in their direction. At last I saw them trotting along slowly towards the ship. About 150 yards away they stopped. I tried to take aim at them, but as it was still too dark to be sure of my shot, I waited a little, hoping that they would come nearer. They stood for a time staring at the ship, but then wheeled round and sneaked off again. I asked Pettersen if he had something to fry which would smell really nice and strong and entice the bears back. He stood ruminating a little, then ran downstairs, and came up again with a pan of fried butter and onions. "I am blowed if I haven't got something savoury for them," he said, and tossed the pan up on the rail. The bears had long been out of sight. It was cold, 35 degrees I should think, and I hurried down to get my fur coat on, but before I had done so Bentzen came running down and told me to make haste, as the bears were coming back. We tore on deck at full speed, and now had the animals well within range, about 100 metres away. I squatted down behind the rail, took a good aim, and—missed fire. The bears were a little startled, and seemed to be contemplating a retreat. I quickly cocked the rifle again and fired at the largest one. It fell head over heels, with a tremendous roar. Then I fired at the second one. It first turned a fine somersault before it fell. After that they both got up and took a few steps forward, but then they both came down again. I gave them each one of the two cartridges

I had left, but still this was not enough for these long-lived animals. Pettersen was very much interested in the sport. Without any weapon he ran down the gangway and away towards the bears, but then he suddenly had misgivings and called to Bentzen to follow him Bentzen, who had no weapons either, was naturally not very keen about running after two wounded bears. After getting some more cartridges, I met Pettersen midway between the bears and the *Fram*. The animals were now crawling along a pressure-ridge. I stopped at a distance of 30 yards, but first of all I had to shout to Pettersen, who, in his eagerness, hurried on before me, and now stood just in the line of fire. At last the great she-bear got her death-wound, and I ran along the pressure-ridge in order to see where the other one had got to. Suddenly it stuck its head up over the ridge, and I at once sent a shot through its neck close up to the head.

All hands were then called out, and great was the rejoicing. Our mouths watered at the thought of the delicious fresh meat we should now enjoy for a long time. It was about 16 months since we had last shot a bear, and for 14 months we had not had any fresh meat, except one or two dishes of seals and birds shot during the summer. We blessed Pettersen's savoury frying-pan. The bears were cut up and made into steaks, rissoles, roasts, etc. Even the bones we laid aside to make soup of. The ribs were the most succulent. We had them

or dinner, and everybody voted that a sirloin of bear was a dish for a king. Accordingly we all ate very large helpings, with heartfelt wishes that it might not be long before some bears again paid us a visit.

After this Pettersen became so infatuated with bear-hunting that he talked of it early and late. One day he got it into his head that some bears would come during the night. He had such a belief in his forebodings that he made all possible preparations for the night, and got Bentzen to join forces with him. Bentzen had the morning watch, and was to call him as soon as the bears appeared. A merry fellow, who wanted to make sure of seeing Pettersen bear-hunting, had taken the precaution to hang a little bell on Bentzen's rifle, so that he could hear when they started. Unfortunately no bear appeared. Pettersen, however, had so set his heart on shooting a bear, that I had to promise to let him have a shot some time when I myself was by and had a charge ready, in case the inconceivable should happen, and Pettersen should miss—a mishap which he would find it very hard to get over.

On Sunday, March 8th, we had another instance of a sudden change in temperature like that of February 21st. In the morning it was cloudy, with a fresh breeze from the E.N.E., but at 3 p.m. the wind fell, and at 6 o'clock changed to a light S.S.E. breeze. At the same time the temperature rose from − 26° C. (− 14·8° F.) to −8° C. (+ 17·6° F.), and it was very pleasant to

saunter round on the half-deck in the evening and breathe the mild air.

On March 4th we saw the sun for the first time. It should have been visible the day before, but then it was too cloudy. By way of compensation, it was now a double festival day, as we could celebrate both the return of the sun and Nordahl's birthday in one.

On March 14th it was one year since Nansen and Johansen commenced their long ice-journey. The day was celebrated by a better dinner, with coffee afterwards and a punch-bowl in the evening.

Besides the usual scientific observations, which were continued without any interruptions worth mentioning, we also took soundings during the winter, but did not reach bottom with a 3,000 metre-line (1,625 fathoms).

On April 13th Scott-Hansen and I took an observation with the theodolite, and Nordahl an observation with the sextant, on the natural horizon. According to the theodolite, the latitude was 84° 11·5′, and by the sextant 84° 13′. We had previously ascertained that there was a difference of about two minutes between the artificial and natural horizons. In using the natural horizon a smaller latitude is obtained, even though there is no mirage. The deviation will, however, under favourable circumstances seldom exceed two minutes. But if there is much mirage, it becomes almost impossible to obtain a fairly correct result. As a rule, therefore, in taking observations in the drift-ice, one has to use the

artificial horizon or theodolite, if a very exact result is desired.

As the time passed on towards spring the days became longer, and more rifts and channels were formed round the ship. It was time to think of beginning preparations for forcing the *Fram* ahead as soon as sufficiently large openings should appear in the ice. The things stored on the ice had been frequently shifted about in the course of the winter, but as the ice became more broken up, it was of little use to shift them. So in the middle of April we took the winter depôt on board and stowed it away in the main hold. We also took on board the sacks from the coal depôt, while the barrels and hogsheads, together with the dog-biscuits, kayaks, and sledges, were for the present left upon the ice. The sun at this time became so strong, that on April 19th the snow began to melt away on the tent; along the ship's side it had been melting for several days.

The first harbinger of spring we saw this year was a snow-bunting, which made its appearance on the evening of April 25th. It took up permanent quarters in one of the sealing-boats, where it was treated with groats and scraps of food, and soon got very tame. It favoured us with its presence for several days, and then flew away. The *Fram* had evidently been a welcome resting-place for it; it had eaten its fill, and gathered new strength for the remainder of its journey. On May 3rd we were again visited by a snow-bunting, and a couple of days

later by two more. I fancy it was our former guest, who in the meantime had found its mate, and now returned with her to call and thank us for our hospitality. They remained with us about an hour, and did their best to cheer us with their chirping and twittering; but as the dogs would not give them any peace, but chased them everywhere they finally took flight, and did not return again.

After the first few days in May, we removed the temporary deck, which had been laid over the davits, cleared the main-deck, and took both the sealing-boats and the long-boats on board. The gangway was also removed, and a ladder put in its place. Next we shipped the rest of the coal depôt, the dog provisions, and the sledges; in fact, we took in everything that was left on the ice. All that was now left to be done was to get the engine ready for getting up steam, and this we set about on May 18th.

The dogs got on well in their kennels on the ice, in spite of the prolonged and intense cold, and we had very little trouble with them. But after the first month in the New Year some of the bigger dogs became so fierce towards the smaller ones that we had to take two of the worst tyrants on board and keep them locked up for a time. They also did a good deal of mischief whenever they had an opportunity. One day, for instance, they began to gnaw at the kayaks that were placed on the top of the largest dog-kennel. However, we got hold of

LARS PETTERSEN ON SNOW SHOES.

them in time before any serious damage was done, and cleared away the snow round the kennel, so that they could not climb up again to go on with this amusement.

On February 10th one of "Sussi's" puppies littered. We took her on board, and laid her in a large box filled with shavings. We allowed her to keep only one of her five pups; we killed two at once, one was born dead, and she had devoured her first-born, the cannibal!

Some days later "Kara" had a litter. She was the only one of the dogs who manifested any maternal instinct. It was quite touching to see her, and we felt sorry to have to take the pups away from her; but we were forced to make away with them, not only because it was impossible to bring them up at that time of the year, but also because the mother herself was only a puppy, delicate and diminutive.

In the beginning of March the October whelps were let out all day, and on March 5th we put them, with the older dogs, under the hood of the fore-companion. In the evening the cover was put on, and when during the night the hole near the edge of the ice became filled up with snow, it got so warm in the hutch that the hoar-frost and ice melted, and all the dogs got wet. The pups felt the cold terribly when they were let out in the morning, and we therefore took them down into the saloon, until they were warm again.

CHAPTER V.

The Third Summer.

On May 17th the *Fram* was in about 83° 45′ N. lat. and 12° 50′ E. long. We again celebrated the day with a flag procession, as on the previous May 17th. Mogstad sat on the bear-skins in the sledge, driving a team of seven dogs, and with the band (*i.e.*, Bentzen) at his side. Just as we were arranging the procession for the march upon the ice, five female narwhals suddenly appeared, and immediately afterwards a small seal was seen in the lane abreast of the ship—an enlivening sight, which we accepted as a good omen for the coming summer.

The great hummock, which was the scene of our merry-makings on May 17th last year, was now so far away and so difficult to reach on account of lanes and rugged ice, that the festivities in the open air were limited to the flag procession. The *cortège* took its way southwards, past the thermometer-hut, to the lane, thence northwards along the lane, and then back to the ship, where it dispersed, but not before it had been photographed.

At 12 o'clock a salute was fired, after which we sat down to an excellent dinner, with genuine "Château la *Fram*," vintage 1896.* The table was laid with great taste, and there was an elegant paper napkin at each cover, with the word *Fram* in the corner and the following inscription :—

"The Seventeenth May, our memorial day,
Recalls what our fathers have done;
It cheers us and heartens us on to the fray,
And shows us that where there's a will there's a way,
And, with right on our side, we may hope to display
The proud banner of victory won."

During the dinner speeches were made in honour of the day, of Norway, of Nansen and Johansen, etc.

During the days following May 17th we were occupied in getting the engine and its appurtenances ready for work and clearing the rudder-well and the propeller-well. First we attempted to pump water into the boiler through a hose let down into a hole out upon the ice. But the cold was still so intense that the water froze in the pump. We were obliged to carry water in buckets and pour it into the boiler by means of a canvas hose, made for the occasion and carried from the boiler

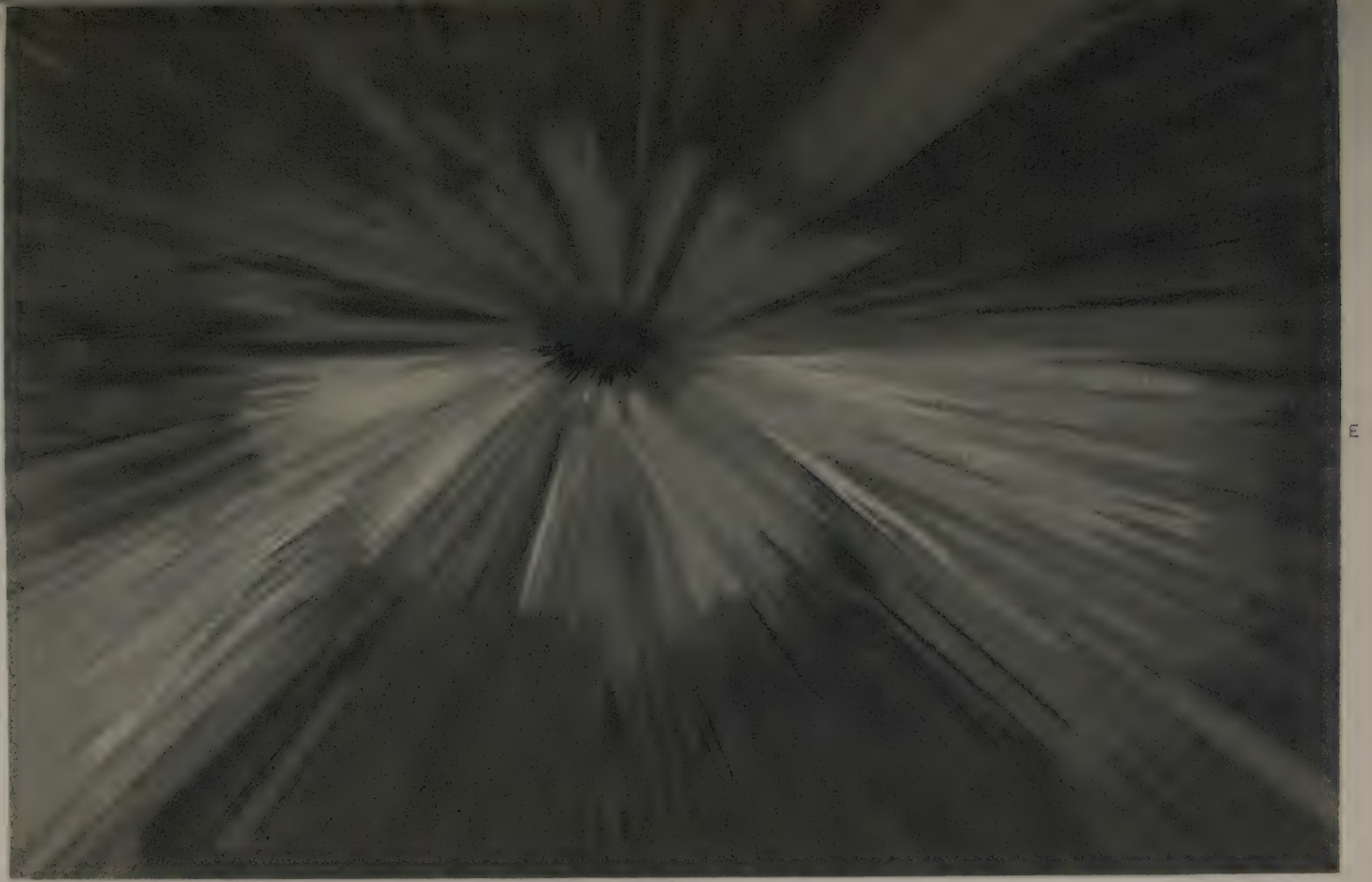
* This claret was made for the occasion, and consisted of the juice of dried red whortleberries and bilberries, with the addition of a little spirits. I was highly complimented on this beverage, and served it again on other occasions.

to the hatchway above the engine-room. Amundsen thought at first that he had got the bottom cock clear so that he could let the water run direct into the boiler, but it soon became evident that it was too slow work as long as there was still any ice around the cock. Later on we hoisted the funnel and lighted the furnaces, and on the afternoon of May 19th the steam was up for the first time since we got into the ice in the autumn of 1893.

Next we cut away as much of the ice as possible in the propeller-well, and carried a steam hose down into it. It was very effectual. We also attempted to use the steam for melting away the ice in the propeller-sheath around the shaft, but without apparent success. We easily procured water for the boiler now by filling the water-tank on the deck with ice and melting it with steam.

After supper we went down into the engine-room to try to turn the shaft, and finally we succeeded in giving it a three-quarters turn. This was victory, and we were all fully satisfied with the day's work.

The following day we melted away the ice in the rudder-well by steam, and at 1.30 p.m. Amundsen began to "move" the engine. Some large pieces of ice floated up from the rudder-stock or frame; we fished them up, and everything was in order. Amundsen let the engine work some time, and everybody was down with him to see the wonder with their own eyes, and to be convinced that he really had got it to turn round.



An Auroral Crown, December 1894. Pencil Sketch.

This was quite an event for us. It filled us with renewed courage and the hope of soon getting out of our long captivity, though the way might be ever so long and weary. The *Fram* was no longer a helpless ball, tossed to and fro at the caprice of the drift-ice. Our gallant ship had awakened to renewed life after her year-long winter sleep, and we rejoiced to feel the first pulsations of her strongly beating heart. It seemed as if the *Fram* understood us, and wanted to say: "Onward! southward! homeward!"

The state of the ice around the ship, however, was still far from being so favourable as to give us any prospect of getting out just at present. It is true that symptoms of spring began to show themselves: the temperature rose, and the snow vanished rapidly; but we still remained at about the same latitude where we had been lying for months, namely at about 84°. From the crow's-nest, indeed, we could see a large channel, which extended southwards as far as the eye could reach; but to get through the belt of ice, over 200 yards wide, which separated us from it, was impossible before the thick pack-ice slackened somewhat. We, therefore, made no attempt to blast the ship free, but devoted our time to various duties on board, did whatever was left undone, got the steam windlass in order, examined all our cordage, and so forth.

In the hole in the ice, which was always kept open for the sinking of the log-line, we had placed the

heads of the two bears, so that the amphipodes might pick off the meat for us, a task which they usually perform quickly and effectually. One day, when a swarm of amphipodæ appeared above the bears' heads, Scott-Hansen caught a lot of them in a bag-net, and had them cooked for supper, intending to give us a regular treat. But we were sadly disappointed. There was not a particle of meat on the miserable creatures, nothing but shells and emptiness. If we put a couple of dozen into our mouths at a time, they tasted somewhat like shrimps. But I am afraid that were we limited to such fare, and nothing else, we should soon diminish unpleasantly in weight.

In the later days of May the prospects became brighter, as the wind changed to half a gale from the east and north. The ice began to drift slowly towards the south-west, and continued to slacken at the same time, so that on May 29th we could see to the southward a good deal of open water, with dark sky above, as far as the eye could reach.

After several requests had been made to me, I decided to make an attempt at blasting the vessel clear. At 1 p.m. we fired a mine of 110 lbs. of gunpowder. It had an astonishingly good effect, wrenching up heavy masses of ice and sending them rushing out into the channel. Our hopes revived, and it really seemed that another such blasting would entirely liberate the vessel. Immediately after dinner we went to

work to lay another large mine, 20 yards abaft the stern. It gave us an incredible amount of work to make a hole in the ice to get the charge down. We first drilled a hole; then we tried to make it larger by blowing it out by means of small gunpowder charges, and later with gun-cotton; but it was of no avail. Then we had to resort to lances, ice-picks, steam, in short, to every possible means, but all in vain. The ice had, however, got so cracked in all directions, owing to the many charges which had been exploded in the same place, that we presumed that a large mine in the log-line hole would blow up the whole mass. As the ice was thinner at that part, the mine was lowered to a depth of 10 yards. It exploded with terrific effect. A mighty column of water was forced as high as the foretop. It did not consist of water alone, but contained a good many lumps of ice, which rained down for some distance round. One piece of over 1 cwt. came down right through the tent, and on to the forecastle; other pieces flew over the vessel, and fell on the starboard side. Scott-Hansen and Henriksen, who were standing on the ice at the electric battery used for firing the mine, were not pleasantly situated when the mine exploded. When the shock came, they of course started to run as fast as their legs would carry them, but they did not get away quickly enough to reach the deep snow. The pieces of ice rained unmercifully down upon their backs. After a great deal of trouble, we laid and fired two other large

gunpowder mines, besides some smaller ones, but without much effect. We then began to drill holes for two gun-cotton mines, which were to be fired simultaneously. But when we had got down two-and-a-half drill-lengths the screw broke, and before we could proceed we had to file new grooves on the other drill, which had become worn. At 12 o'clock at night we knocked off work, after having been at it unceasingly since the morning.

Next day at 6 o'clock the boring was continued. But the ice was so hard and difficult to work at, that, although four men were handling the drill, we had to erect a small crane with tackle to hoist the drill out every time it got clogged. The ice was so thick, that it took four drill-lengths (about 20 feet) to make a hole through it. One of the gun-cotton mines was now lowered into the hole, while the other was put beneath the edge of an old channel by means of a long pole. Both mines were fired simultaneously, but only one exploded. We connected the wires, and then the other went off too. But the result was far from answering our expectations. Although the large mines were carried down to a depth of 20 yards where the ice was thin, the resistance was too great for us.

The blasting was now discontinued till June 2nd, when during the night the ice opened up along the old lane close to the vessel. First we fired a gun-cotton mine right abaft. It took effect and split the ice close to the stern. Next we drilled a hole about 16 feet deep right abreast

of the ship, and loaded it with 10 prismer, or 330 grammes, of gun-cotton (equivalent to about 30 lbs. of ordinary gunpowder); but as I thought it would be too risky to explode a mine of this strength so near the vessel, we first fired a small gunpowder mine of 11 lbs. to see what effect it would have. The result was insignificant, so the large mine was fired. It made things lively indeed! The ship received such a shock, that one of the paintings and a rifle fell down on the floor in the saloon, and the clock in my cabin was hurled from the wall. It was evidently felt in the engine-room as well, for Amundsen had a bottle and a lamp-chimney smashed. On the ice the explosion took such good effect, that the ship nearly broke loose at one blow; she was now merely hanging on a little forward and aft. With a little more work we might have got quite clear the same evening, but I left her as she was to avoid the trouble of mooring her. Instead of that we had something extra after supper; we considered that we had done such a good stroke of work that day that we deserved a reward.

Next morning we blew away the ice that held our bow. I myself took a pick-axe and commenced to hack away at the ice which held the stern fast. I had hardly been at work at this for more than four or five minutes before the vessel suddenly gave a lurch, settled a little deeper at the stern, and moved away from the edge of the ice, until the hawsers became taut. She now lay about 6 inches higher at the bow than when she froze fast in the autumn.

Thus the *Fram* was free, and ready to force her way through the ice as soon as the circumstances would permit. But we were still unable to move.

Even in the month of May there had been signs of

THE "FRAM" BEFORE HER RELEASE.

whales and seals in the channels, and an occasional sea-bird had also put in an appearance. During the months of June and July there was still more animal life around us, so that we could soon go in for hunting to our hearts'

content. During the summer we not only shot a number of fulmars, black guillemots, skuas, auks, and little auks, but also a couple of eider ducks, and even a brace of broad-billed sand piper. We also shot a number of small seals, but only got hold of six ; the others sank so rapidly that we could not reach them in time. As a matter of course, we welcomed every opportunity of a hunting expedition, especially when there was a bear in the case. It was not often he did us the honour, but the greater was the excitement and interest when his appearance was announced. Then the lads would get lively, and hastily prepare to give the visitor a suitable reception. Altogether we killed sixteen or seventeen full-grown bears during the summer, and a young one, which we captured alive, but had to kill later on, as it made a fearful noise on board.

One night in the beginning of June, when Henriksen was on his way to the observation-house to take the readings of the instruments, a bear suddenly came upon him. Before starting on his scientific quest, he had been prudent enough to go up on the bridge to have a look around and see whether the coast was clear ; but he did not observe anything suspicious. When he approached the observation-house he suddenly heard a hissing sound close by, and caught sight of a grinning bear, which was standing at a pressure-ridge staring at him. Naturally Henriksen felt anything but comfortable at this unexpected meeting, unarmed as he was. He at

first considered whether he should beat a dignified retreat, or whether he should fly at the top of his speed. Both parties were equally far from the vessel; and if the bear had evil intentions, it might be advisable to retreat without delay before he approached any nearer. Peter started off as fast as he could, and was not sure whether the beast was not at his heels; but he reached the vessel safely and seized his gun, which was standing ready on deck. Before he came out upon the ice again, the dogs had scented the bear, and at once attacked him. The bear at first jumped up on the observation-house, but the dogs followed, so down he went again, and with such alacrity, too, that Henriksen had no time to fire. The bear started off to the nearest channel, where he disappeared both from the dogs and the hunter. In his eagerness "Gorm" jumped out upon some pieces of ice which were floating in the thick brash in the channel, and being afraid to jump back again, sat there howling. I heard the wailing, and soon caught sight of him from the crow's-nest, whereupon Scott-Hansen and I started off and rescued him.

Some days later, at about 10 o'clock in the morning, we heard Nordahl crying, "Bear!" and all hurried on deck with our rifles. But the dogs had had the start of us, and had already put the bears to flight. Mogstad perceived, however, from the crow's-nest, that the dogs had come up with them at a small lane, where they had taken the water, and he then came down to tell me. He

and I started off in pursuit. The condition of the ice was good, and we made rapid progress; but as we had the wind on our side, it was some time before we could distinguish the barking of the dogs so as to be able to guide ourselves by it. Presently I caught sight of one of the dogs behind a small ridge; soon I saw some more, and at last I sighted the bears. They were both sitting on a floe in the channel, leaning with their backs against a big piece of ice. Two of the dogs had jumped out upon the floe, while the others stood on guard round the channel or pool. The dogs had played their part well keeping such a close watch upon the bears that we had no difficulty in giving them their quietus. They both tumbled over on the spot; but as they moved slightly, we gave them a final shot, just to make sure.

Well, there they lay. But to get out to them was not so easy. Finally, having walked round the pool, we succeeded in getting out upon the floe from the other side, where the distance from the solid ice was less and where some small floes formed a kind of bridge. We cleaned the game, and then tried to haul the bodies over upon the solid ice. This we accomplished by putting a running noose over the muzzles of the bears and pulling them through the water to the edge of the ice, where we pushed some small floes beneath them; and then, with our united strength, we hauled them up. When homeward bound, we met Nordahl, Pettersen, Bentzen, Henriksen, and the mate, who had guessed from the report of our

guns that there was business on hand, and had started out to meet us with sledges and harness for the dogs. The sledges were lashed together, one bear was placed on each, and, with nine dogs harnessed to them and a man sitting astride each bear, off they went at such a speed that the rest of us had to run to keep pace with them.

On the night of June 24th we again received a visit from two bears. Nordahl discovered them when, at 12 o'clock, he went out to the observation-house; he came running back, and called those who had not yet gone to bed. But when they hurried out upon the ice the bears saw them immediately and disappeared.

Three days later a she-bear, with a young cub, came trotting towards the vessel at noon. We burned some blubber in order to attract them, but the bear was very cautious, and it was some time before she approached to within 200 to 300 yards. Then the mate could not restrain himself any longer and fired, so the rest of us sent her a few shots at the same time, and she fell after walking a few paces. Some of us took the "pram" and pulled across to the place, as there was a wide channel between the bear and the vessel. The cub, poor thing, was a fine little fellow, with almost perfectly white fur and a dark muzzle; it was about the size of one of our smallest dogs. When they came up, he sat down on his mother's body, and remained there quite still, seeming for the present to take matters

calmly. Henriksen put a strap around his neck, and when the mother was conveyed to the channel he followed quite willingly, and sat down on her back again when she was towed across. But when, on arriving at the ship, he found he was to be separated from his mother and brought on board, it was quite another story. He resisted with all his strength, and was in a perfect rage. He got worse when he was let loose under the companionhatch on board. He carried on like a frenzied being, biting, tearing, growling, and howling with wild rage, like a veritable fiend, ceasing only as long as he was occupied in devouring the pieces of meat thrown to him. Never have I seen in any one creature such a combination of all the most savage qualities of wild beasts as I found in this little monster. And he was still quite a cub! In the evening I gave orders to rid us of this unpleasant passenger, and Mogstad ended his days with a well-aimed blow of the hatchet.

For about a fortnight we saw no bears, but during the night of July 12th we had a visit from three, one of which, after a hot pursuit, was killed by Scott-Hansen, the mate, Nordahl, and Bentzen. The dogs, too, did good service this time. The other two bears sneaked off at the first shot, and were lost to sight in the fog.

On the evening of July 18th, Mogstad and I shot a bear, which we should hardly have got hold of but for the sagacity and alacrity of "Bella." The dogs at first

attacked him once or twice, but after a short resistance he jumped into the water, and crossed over two broad lanes, which it took the dogs a long time to get round. He was just about to plunge into a third channel, when "Bella," who in the meantime had come round, intercepted him not 20 feet from the edge. At a distance of 200 or 300 yards Mogstad fired, and was lucky enough to hit him in the head, bringing him down, and he now made only some feeble attempts to keep the dogs off. I then sent him a shot behind the shoulder; but, as he was not quite dead, Mogstad gave him the final one.

On July 20th the mate shot a large bear, which came swimming across a channel; and we killed our last bear on the evening of August 6th, but in such an awkward position that we had to leave the meat, and it was as much as we could do to get the hide on board.

In the matter of birds, we were also pretty fortunate. For instance, Scott-Hansen and I one night shot 9 little auks, 1 kittiwake, and 1 skua, and the following day 21 more little auks and 2 black guillemots. Henriksen in one day's shooting bagged 18 little auks and 1 black guillemot, and Nordahl, 26 little auks and 1 black guillemot; and later on, when there had been an abundance of game for some days, we killed as many as 30 to 40 birds in the course of a few hours.

This hunting life had not only a beneficial effect upon our spirits, which occasionally were rather low, but it also gave us an appetite, which sometimes was quite ravenous.

When we were weighed at the end of the month, we found that, whereas some of us had previously been losing weight, we had now steadily and uniformly increased from the time when auk's breast, roast guillemot, stewed kittiwake, skua soup, and last, but not least, ribs of bear, became the daily fare on board.

Indeed, we stood in need of all the encouragement and good living which our hunting procured us. The state of the ice was anything but cheering, and the prospect of getting out of it during the present year became less every day.

During the first days following the release of the *Fram*, the ice was comparatively quiet; but on June 8th and 9th we had some bad pressures, especially on the latter day, when the stern of the vessel was pressed about 6 feet upwards, so that the rudder-well was quite out of the water, while the bow was raised about 2 feet, with 4° list to port. On the 10th and 11th the pressure was also strong, especially during the night, from 11.30 p.m. till 3 or 4 a.m.

Finally, the ice slackened so much on the morning of June 12th, that there was a prospect of warping the vessel some distance ahead. As the brash was still very thick, we did not think it possible to haul ourselves along without using the steam windlass, so I gave orders to start a fire under the boiler. But before steam was up the channel opened so much that we succeeded in warping the ship through the narrowest passage. When steam

was up we steamed through the pool, where I had found a good berth for the ship. As the rudder was not yet shipped, I had sometimes to go astern, so as to be able to turn the vessel. We remained there till June 14th, when the ice slackened a little, and we saw a channel in a S.S.W. direction, and determined to make for it. So we lighted the furnace, shipped the rudder, and made at full speed for a narrow rift, which led into the channel. Time after time we forced the vessel into the rift, but all in vain : the edges would not budge a hair's-breadth. I let the vessel remain for some time working at full speed, endeavouring to force the rift, altering the position of the rudder occasionally. This manœuvre was partially successful, as we got the vessel into the rift as far as the fore-rigging. But that was all we could do. The opening began to close up, and we had to return and moor in the same place as before. This was all the more provoking as the whole opening was not longer than about three-fourths the ship's length.

We remained there till the evening of the 27th, when the ice slackened so much that I decided to make a new attempt. We got up steam and commenced to force the ice at 11.30. It was slow work in the heavy ice, and at 2 o'clock we had to moor the ship, having advanced about 2 miles S.E. by S. We tried the engine this time as a compound engine, with a favourable result. It made 160 revolutions per minute ; but the consumption of coal was of course correspondingly greater, almost

twice as much as usual. We remained there about a week, until on July 3rd the ice opened sufficiently to allow us to advance about 3 miles through a channel, which ran S.S.W. During the night between the 6th and the 7th we made another attempt to force the ice, but had only made about 1 mile when we had to moor again.

The southerly wind which predominated at that time held the ice thickly packed together, and there was no drift to speak of. On the other hand, there had been since the middle of June a good deal of current, owing to the set of the tide. We could not, however, observe that the current really flowed in any definite direction; sometimes the line would show every point in the compass during the 24 hours. The current was, however, often very strong, and would occasionally spin the ice-floes around in the channels in a way that made the spectator feel quite giddy. The ship, too, would often receive such violent shocks from these dancing floes and blocks of ice, that loose objects tumbled down, and the whole rigging shook. The sea continued very deep. For instance, on July 6th we could not get bottom at 3,000 metres (1,625 fathoms); but two days later—we were then about 83° 2′ N. lat.—we took soundings and reached bottom at 3,400 metres (1,841 fathoms).

On July 6th we succeeded in warping the ship some two or three short stretches at a time, but it was slow and hard work: the ice was bad, and the contrary

wind impeded us very much. But though progress was slow, yet progress it was, and I gave orders that the ship should be hauled along as often as there was any opportunity to advance a little southwards.

But although we struggled along in this manner for short distances at a time, the observation on the 13th revealed to us the fact that we had actually been drifting a considerable way backward, having returned to 83° 12′ N. lat. It might seem ridiculous, under such circumstances, to continue pushing forward ; but, gloomy as the prospects were, we tried to keep up our hopes, and were ready to utilise the very first chance which should present itself.

Late in the evening of July 17th, the ice began to slacken so much that we decided to get up steam. True, it closed up again at once, but nevertheless we kept up steam. Nor were we disappointed, for at 1 o'clock in the morning the water opened so much that we were able to steam ahead, and we made 3 miles in a southerly direction. Later in the morning we were stopped by an immense floe of ice, extending many miles ; and we had to make fast. The whole day following we remained there. About midnight the ice slackened a good deal, but the fog was so dense that we could see nothing. At last, on the 19th, we made what we considered excellent headway Starting when the fog lifted a little in the forenoon, we made about 10 miles from 12.30 p.m. till 8 p.m. This stroke of good luck made our spirits revive wonderfully,

and they rose still more the following day when, notwithstanding the fog, and though we had to stop three times, we advanced from 83° 14′ in the morning till 82° 52′ at noon and 82° 39′ midnight. From the 20th to the 27th we continued to make good progress. By midnight on the last-named day we had reached 81° 32′ N. lat.

From July 27th till August 2nd it was slow and tiresome work. By August 2nd we had not got beyond 81° 26′ N. lat. At the same time we had been carried some distance eastwards, namely, to 13° 41′ E. long.

On Monday, August 3rd, we made about 2 miles to the south-west, but had to remain moored in impossible waters till the 8th, when it slackened so much around the vessel that we were able to proceed again at 9 a.m. However, we had only made about 6 miles, when we were stopped by a long, narrow strait. We tried blasting with ordinary gunpowder, and later with gun-cotton, and time after time we steamed full speed against the smaller floes that blocked the strait, but without effect. These floes, as a rule, are not so small and innocent as they appear. They consist generally of the fragments of old, thick, and very tough pressure-ridges which have been broken up. When these pieces get free, they sink deep below the surface of the water, leaving only a comparatively insignificant part of them discernible, while the lower parts may be very large. It was precisely this description of floe that blocked the channel against us. They were so tough that it was

useless to try to break them with the stem of the vessel, although we repeatedly made at them with full speed. We could plainly see how the tough old ice bent and rose up at the shock without breaking. The blasting of such floes was frequently impracticable, as they were of such a thickness that we were unable to lay the mine under them. And even if we succeeded in blowing up one of these floes, we gained little or nothing, as the channel was too narrow to allow the pieces to float astern, and they were too heavy and thick to be forced beneath the solid edge of ice.

Occasionally it happened that old, thick ice suddenly emerged from beneath the water in a channel or opening which we were just about to pass into, thus blocking up the passage before us. On one of these occasions the *Fram* received a blow in the ribs that hardly any other vessel would have withstood. As we were passing through an open channel I saw from the crow's-nest one end of a large submerged floe appearing above the edge of the solid ice, and I immediately gave orders to steer clear so as to pass round it. But at the very moment when we reckoned to clear it the floe was released, and came to the surface with such a rush that the spray rose high into the air and struck the *Fram* at the fore-rigging on the starboard side with such tremendous force that the ship lurched violently and fell about 10 points out of her course, until she ran up against some small floes. When the monster floe emerged it lifted a huge mass of

water and sent it like a roaring cataract out into the channel.

Something similar happened when we occasionally touched a drifting hummock that was just on the point of rolling over, owing to the quicker melting of the ice below the water-line. The slightest push would be enough to capsize the hummock and turn it over in such a violent way that the sea around us would become as agitated as during a storm.

On August 9th we worked the whole day clearing the channel, but only made slight headway. On the 10th the work was continued, and in the course of the forenoon we finally succeeded in getting through. During the rest of the day we also made some headway to the south until the ice became impassable, and we were compelled to make fast at 10 p.m., having made about 2 miles.

On account of the fog, we were unable to take any observation until the 9th, when we found ourselves in 81° 48′ N. lat., the last latitude observation we made in the drift-ice.

On Tuesday, the 11th, we again proceeded southwards by dint of arduous labour in clearing floes and brash, which often blocked our way. At 7.30 p.m. we had to make fast in a narrow strait, until, in the course of the night, we cleared the obstacles away and were able to proceed to the south-west. Progress was, however, slow, and on the morning of August 12th we were stopped by a very awkward floe. We tried to blast it away, but while

we were at work on this the ice tightened up quickly, and left the vessel imprisoned between two big floes. In the course of a couple of hours it slackened again in a S.W. direction, and we steamed off in comparatively fair channels until 12.30 p.m., when a floe stopped our further progress. We had made 9½ miles in about five hours this forenoon. Some thin ice now appeared, and from the crow's-nest we could see, when the fog cleared off a little for a few moments, several large channels running in a southerly direction both east and west of our position. Besides, we noticed an increase in the number of birds and small seals, and we also saw an occasional bearded seal, all evidences that we could not be very far from the open water.

Between 3 and 4 p.m. we were released from the floes which had held us enclosed, and at 5.30 p.m. we steamed off in a S.E. direction through steadily-improving ice. The ice now became noticeably thin and brittle, so that we were able to force the smaller floes. From 5.30 p.m. till midnight we advanced about 16 miles; the engine was used as compound during the last watch.

After midnight on August 13th we steered S.W., then S. and S.E., the ice continuing to grow slacker. At 3 o'clock we sighted a dark expanse of water to the S.S.E., and at 3.45 we steered through the last ice-floes out into open water.*

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* Twenty-eight days' work of forcing this more or less closely-packed ice had brought us a distance of 180 miles.

WE WERE FREE! Behind us lay three years of work and hardships, with their burden of sad thought during the long nights, before us life and reunion with all those who were dear to us. Just a few more days! A chaos of contending feelings came over each and every one. For some time it seemed as if we could hardly realise what we saw, as if the deep blue, lapping water at the bow were an illusion, a dream. We were still a good way above the eightieth degree of latitude, and it is only in very favourable summers that ice-free water stretches so far north. Were we, perhaps, in a large, open pool? Had we still a great belt of ice to clear?

No, it was real! The free, unbounded sea was around us on every side; and we felt, with a sense of rapture, how the *Fram* gently pitched with the first feeble swell.

We paid the final honours to our vanquished antagonist by firing a thundering salute as a farewell. One more gaze at the last faint outlines of hummocks and floes, and the mist concealed them from our view.

We now shaped our course by the compass S.S.E., as the fog was still so dense that no observation could be taken. Our plan was at first to steer towards Red Bay, get our land-fall, and thence to follow the west coast of Spitzbergen southwards till we found a suitable anchoring-place, where we could take in water, shift the coal from the hold into the bunkers, and, in fact, make the *Fram* quite ship-shape for our homeward trip.

At 7 a.m., when the fog lifted slightly, we sighted a

sail on our port, and shaped our course for her in order to speak her and try to get some news of Dr. Nansen and Johansen. In an hour or so we were quite near her. She was lying to, and did not seem to have sighted us until we were close on her. The mate then ran down to announce that a monster ship was bearing down upon them in the fog. Soon the deck was crowded with people, and just as the captain put his head out the *Fram* passed close up on the weather-side of the vessel, and we greeted her in passing with a thundering broadside from our starboard cannon. We then turned round astern of her, and fired another salute to leeward, after which "hostilities" were discontinued. No doubt it was a rather demonstrative way of making ourselves known to our countrymen, who were lying there so peacefully, drifting in the morning mist, and probably thinking more of seals and whales than of the *Fram*. But we trust that Captain Botolfsen and his crew will forgive us our overflowing joy at this our first meeting with human beings after three long years.

The vessel was the galliot *Söstrene* (The Sisters), of Tromsö. The first question which was shouted to him as we passed alongside was this: "Have Nansen and Johansen arrived?" We had hoped to receive a roaring "Yes," and were ready to greet the answer with a thundering "Hurrah" and salute; but the answer we got was short and sad, "No."

Captain Botolfsen and some of his crew came on

board to us, and had to go through a regular cross-fire of questions of every conceivable kind. Such an examination they had certainly never been subjected to, and probably never will be again.

Among the many items of news which we received was one to the effect that the Swedish aeronaut, Engineer Andrée, had arrived at Danes Island, intending to proceed thence by balloon to discover the North Pole.

Botolfsen came with us as a passenger, leaving his vessel in charge of the mate, and accompanied us as far as Tromsö. We reshaped our course about noon for Red Bay, intending to steam from there to Danes Island and see Mr. Andrée. About midnight we sighted land ahead, and supposed it to be the cape immediately to the west of Red Bay. It was 1,041 days since we last saw land.

We lay to for some time at this point, waiting for the fog to clear away sufficiently to allow us to find the landmarks. As it did not clear, we steamed slowly westwards, taking frequent soundings, and soon found ourselves, as we anticipated, right in "Norsksundet" (Norwegian Sound), and proceeding up, we anchored at 9.30 a.m. off "Hollændernæset" (Dutch Cape). The fog was now cleared, and we soon saw the steamship *Virgo*, of the Andrée Expedition, and the balloon-house ashore.

Through the telescope we could see that our arrival

had been observed, and a steam launch soon came alongside with Mr. Andrée, the other members of the expedition, and Captain Zachau, of the *Virgo*.

Neither could these gentlemen give us any news of the fate of our comrades. Our spirits became still more depressed than before. We had confidently expected that Nansen and Johansen would reach home before us. Now it seemed as if we were to be the first to arrive.

We did not, however, entertain any serious fears for their safety, especially when we learned that the Jackson Expedition had spent two winters in Franz Josef Land. It was highly probable that Dr. Nansen and Johansen would sooner or later meet with this expedition, and were, perhaps, only waiting for a chance of getting home. But if they had not met with Jackson, something had evidently gone amiss with them, in which case they needed assistance, and that as soon as possible.

Our plans were soon laid. We would hurry home to Tromsö to get reliable information, and, in case nothing had been learned there either, we would complete our coal supply—we were not in want of anything else—and immediately proceed to Franz Josef Land, to make a search for them and, as we hoped, have the unspeakable pleasure of bringing them home to our expectant fatherland in our own faithful *Fram*.

Our stay at Danes Island was consequently cut as short as possible. We paid visits to the *Virgo*, saw the balloon, which was now ready to start as soon as a

favourable wind would permit of it, and received return visits from our amiable Swedish friends. During the night we finished taking in water and shifting the coal; the vessel was ready for sea, and at 3 a.m. on August 15th the *Fram* steamed off, with sails set, through Sneerenburg Bay and out to sea.

During the passage across we had good weather and a fair and often fresh breeze, the vessel making good speed: upwards of 9¼ knots.

At 9 a.m. on the 19th we saw the first blue ridges of our native mountains. By noon we sighted Lögö, and at 8 p.m. the north point of Loppen. Then we steered into Kvænangen Fjord, and anchored off Skjærvö at 2 o'clock in the morning of August 20th.

As soon as the anchor had fallen, I called the doctor and Scott-Hansen, who both wanted to go ashore with me. But as they were too slow with their toilet, I asked Bentzen to put me ashore in the pram, and was soon at the telegraph station, where I tried to knock life into the people by thundering with my clenched fists first at one door, then at another, but for a long time in vain. At last a man put his head out of a window on the second floor to inquire what kind of night-prowlers were making such a disturbance. It was the chief of the telegraph station himself. He describes the nocturnal incident in a letter to one of the Christiania newspapers in the following pleasant manner:—

"It was with anything but amiable feelings and inten-

tions that at about half-past four I turned out to see what wretch it was who was making such a lively rattle at my front door. Rather lightly clad, I put my head out of the window, and roared out, 'Hallo! What's the matter? Deuce of a noise to make at this time of night!'

"A man dressed in grey, with a heavy beard, stepped forward. There was something about his appearance that made me think at once that I had perhaps been somewhat too hasty in giving vent to my displeasure at being called up, and I felt a little crestfallen when he slily remarked, 'Yes, that's true; but all the same I must ask you to open the door: I come from the *Fram*.' Immediately it dawned upon me who it was. It could be none other than Sverdrup. 'Coming directly, Captain,' I answered, and jumping into the most necessary clothes, down I went to let him in. He was not at all annoyed at the long waiting, or the unfriendly words with which he had been received, when he set foot again in his native country after the long and famous expedition, but was very kind and good-humoured when I begged his pardon for the rudeness with which I had received him. In my inmost heart I made an even warmer apology than I had stammered out in my first embarrassment.

"When Sverdrup was seated the first question was naturally as to the way he had come. They had just arrived from off the coast of Spitzbergen. On the 13th they had got out into open water, where they almost

immediately met with Captain Botolfsen, from Tromsö, who was there with his whaling ship. They had brought him with them. They had next visited Andrée, who was about to pack up and go home, and had then proceeded to this place. They had first learned from Botolfsen, and then from Andrée, who ought to have had some of the latest tidings from Norway, that nothing was known about Nansen, whom they hoped to find at home, and the joy they were feeling at the prospect of reaching home soon was considerably damped by this news.

"'Ah, but I can give you news of Nansen,' said I. 'He arrived at Vardö on August 13th, and is now at Hammerfest. He's probably starting for Tromsö to-day in an English yacht.'

"'Has Nansen arrived?'

"The stalwart form bounded up in a state of excitement rarely shown by this man, and exclaiming 'I must tell the others at once,' he vanished out of the door.

"A moment later he returned, accompanied by Scott-Hansen, Blessing, Mogstad, and Bentzen, all of them perfectly wild with joy at the latest news, which crowned all, and allowed them to give full vent to their exultation at being once more in their native land after their long and wearisome absence, which the uncertain fate of their leader and his comrade would otherwise have damped. And they did rejoice! 'Is it true? Has Nansen

arrived?' was repeated on all sides. 'What a day this is, what joy! And what a curious coincidence that Nansen should arrive on the same day that we cleared the last ice and steered homeward!' And they congratulated each other, all quivering with emotion, these sturdy fellows.

"In the early morning two thundering reports were suddenly heard from the *Fram*, followed by the ringing cheers of the crew in honour of their absent comrades. The inhabitants of the place, who were fast asleep, were quite startled, and soon got out of bed; but when it finally dawned upon them that it could be none other than the *Fram*, they were not slow in turning out to have a look at her.

"As they anchored here, the fragrance of the new-mown hay was wafted to them from the shore, and to them it seemed marvellous. The green meadows, with their humble flowers, and the few trees bent and almost withered by the merciless wind and weather, looked to them so delightful, that our poor island was a veritable Eden in their eyes. 'Yes, to-day they would have a good roll on the grass.'

"For the rest, Mother Nature was as smiling and festally arrayed as could be expected so late in the year in these northern latitudes. The fjord was calm, as though it feared by the faintest ripple to interrupt the tranquillity which enveloped the tried and weather-beaten warrior now resting upon its smooth surface.

"They were all quite enthusiastic about the vessel. I do not believe there is a man on board who does not love the *Fram*. Sverdrup declared that a 'stronger and finer ship had never been built, and was not to be found in the wide world!'"

On my way to the fjord, I met five of our comrades. Nordahl hurried at once on board with the glad tidings, while the rest of us settled down with the telegraph manager around a smoking cup of coffee, which tasted delicious. A better welcome we could not have had. But it did not end with the coffee or with the telegraph manager. Soon the popping of champagne corks sounded successively in the houses of the store keeper and local magistrate, while the telegraph manager sent message upon message announcing our arrival to Dr. Nansen, His Majesty the King, the Norwegian Government, and to relations and friends.

At 10 a.m. we weighed anchor and set off to meet Nansen and Johansen at Tromsö, passed to the north of Skjaervö, and steamed south. Off Ulfstinden we met the steamer *King Halfdan*, with 600 passengers on board, coming from Tromsö to meet us. We accepted the offer to take us in tow, and at 8.30 p.m. the *Fram* glided into the harbour of Tromsö, accompanied by hundreds of flag-covered boats, and was received with cheers and hearty welcome.

Next day, August 25th, at 4 p.m., Sir George Baden-Powell's steam-yacht *Otaria*, with Dr. Nansen and Johansen on board, arrived. After a separation of 17 months, our number was again complete, and the Norwegian Polar Expedition was once more united.

Blessing. Nordahl. Mogstad. Henriksen. Pettersen. Johansen.
Bentzen. Scott-Hansen. Sverdrup. Jacobsen. Nansen. Juell.
Amundsen.

THE MEMBERS OF THE EXPEDITION, AFTER THEIR RETURN TO CHRISTIANIA.

(From a photograph.)

CONCLUSION.

By FRIDTJOF NANSEN.

What, then, are the results of the Norwegian Polar Expedition? This is a question which the reader might fairly expect to find answered here; but the scientific observations brought back are so varied and voluminous that it will be some time yet before they can be dealt with by specialists and before any general estimate of their significance can be formed. It will, therefore, be necessary to publish these results in separate scientific publications; and if I now attempted to give an idea of them, it would necessarily be imperfect, and might easily prove misleading. I shall, therefore, confine myself to pointing out a few of their more important features.

In the first place, we have demonstrated that the sea in the immediate neighbourhood of the Pole, and in which, in my opinion, the Pole itself in all probability lies, is a deep basin, not a shallow one containing many expanses of land and islands, as people were formerly inclined to assume. It is certainly a continuation of the deep channel which

extends from the Atlantic Ocean northwards between Spitzbergen and Greenland. The extent of this deep sea is a question which it is not at present easy to answer; but we at least know that it extends a long way north of Franz Josef Land, and eastwards right to the New Siberian Islands. I believe that it extends still further east, as, I think, may be inferred from the fact that, the more the *Jeannette* Expedition drifted north, the greater depth of sea did they find. For various reasons, I am led to believe that in a northerly direction also this deep sea is of considerable extent. In the first place, nothing was observed, either during the drift of the *Fram* or during our sledge expedition to the north, that would point to the proximity of any considerable expanse of land; the ice seemed to drift unimpeded, particularly in a northerly direction. The way in which the drift set straight to the north as soon as there was a southerly wind was most striking. It was with the greatest difficulty that the wind could head the drift back towards the south-east. Had there been any considerable expanse of land within reasonable distance to the north of us, it would have blocked the free movement of the ice in that direction. Besides, the large quantity of drift-ice, which drifts southwards with great rapidity, along the east coast of Greenland all the way down to Cape Farewell and beyond it, seems to point in the same direction. Such extensive ice-fields must have a still larger breadth of sea to come from than that through

which we drifted. Had the *Fram* continued her drift instead of breaking loose to the north of Spitzbergen, she would certainly have come down along the coast of Greenland; but probably she would not have got close in to that coast, but would have had a certain quantity of ice between her and it; and that ice must come from a sea lying north of our route. On the other hand, it is quite probable that land may exist to a considerable extent on the other side of the Pole between the Pole and the North American archipelago. It appears to me only reasonable to assume that this multitude of islands must extend further towards the north.

As a result of our expedition, I think we can now form a fairly clear idea of the way in which the drift-ice is continually moving from one side of the polar basin north of Behring Strait and the coast of Siberia, and across the regions around the Pole, and out towards the Atlantic Ocean. Where geographers at one time were disposed to locate a solid, immovable, and massive ice-mantle, covering the northern extremity of our globe, we now find a continually breaking and shifting expanse of drift-ice. The evidence which even before our expedition had induced me to believe most strongly in this theory is supplied by the Siberian drift-wood that is continually being carried to Greenland, as well as the mud found on the ice, as it could scarcely be of other than Siberian origin. We found several indications of this kind during our expedition, even when we were

as far north as 86°, furnishing valuable indications as to the movement of the ice.

The force which sets this ice in motion is certainly for the most part supplied by the winds; and as in the sea north of Siberia the prevailing winds are south-easterly or easterly, whereas north of Spitzbergen they are north-easterly, they must carry the ice in the direction in which we found the drift. From the numerous observations I made I established the existence of a slow current in the water under the ice, travelling in the same direction. But it will be some time before the results of these investigations can be calculated and checked.

The hydrographic observations made during the expedition furnished some surprising data. Thus, for instance, it was customary to look upon the polar basin as being filled with cold water, the temperature of which stood somewhere about — 1·5° C. Consequently our observations showing that under the cold surface there was warmer water, sometimes at a temperature as high as + 1° C., were surprising. Again, this water was more briny than the water of the polar basin has been assumed to be. This warmer and more strongly saline water must clearly originate from the warmer current of the Atlantic Ocean (the Gulf Stream), flowing in a north and north-easterly direction off Novaya Zemlya and along the west coast of Spitzbergen, and then diving under the colder, but lighter and less briny, water of the

Polar Sea, and filling up the depths of the polar basin. As I have stated in the course of my narrative, this more briny water was, as a rule, warmest at a depth of from 200 to 250 fathoms, beyond which it would decrease in temperature, though not uniformly, as the depth increased. Near the bottom the temperature rose again, though only slightly. These hydrographic observations appear to modify to a not inconsiderable extent the theories hitherto entertained as to the direction of the currents in the northern seas; but it is a difficult matter to deal with, as there is a great mass of material, and its further treatment will demand both time and patience. It must therefore be left to subsequent scientific publications.

Still less do I contemplate attempting to enter here into a discussion on the numerous magnetic, astronomical, and meteorological observations taken. At the end of this work I merely give a table showing the mean temperatures for each month during the drift of the *Fram* and during our sledging expedition.

On the whole, it may probably be said that, although the expedition has left many problems for the future to solve in connection with the polar area, it has, nevertheless, gone far to lift the veil of mystery which has hitherto shrouded those regions, and we have been put in a position to form a tolerably clear and reasonable idea of a portion of our globe that formerly lay in darkness, which only the imagination could penetrate. And should

we in the near future get a bird's-eye view of the regions around the Pole as seen from a balloon, all the most material features will be familiar to us.

But there still remains a great deal to be investigated, and this can only be done by years of observation, to which end a new drift, like that of the *Fram*, would be invaluable. Guided by our experience, explorers will be in a position to equip themselves still better; but a more convenient method for the scientific investigation of unknown regions cannot easily be imagined. On board a vessel of this kind, explorers may settle themselves quite as comfortably as in a fixed scientific station. They can carry their laboratories with them, and the most delicate experiments of all kinds can be carried out. I hope that such an expedition may be undertaken ere long, and if it goes through Behring Strait and thence northwards, or perhaps slightly to the north-east, I shall be very much surprised if observations are not taken which will prove of far greater scope and importance than those made by us. But it will require patience: the drift will be more protracted than ours, and the explorers must be well equipped.

There is also another lesson which I think our expedition has taught, namely, that a good deal can be achieved with small resources. Even if explorers have to live in Eskimo fashion and content themselves with the barest necessaries, they may, provided they are suitably equipped, make good headway and cover considerable distances

in regions which have hitherto been regarded as almost inaccessible.

MEAN TEMPERATURES (FAHR.) FOR EVERY MONTH DURING THE DRIFT OF THE *Fram*.

Months.	1893.	1894.	1895.	1896.
	°	°	°	°
January . .	...	− 32·3	− 28·1	− 35·3
February . .	...	− 32·1	− 34·2	− 30·5
March . . .	...	− 35·1	− 30·6	− 1·7
April . . .	...	− 6·1	− 19·7	− 0·6
May . . .	...	+ 13·8	+ 10·2	+ 12·6
June . . .	...	+ 29·3	+ 28·0	+ 28·9
July . . .	...	+ 32·4	+ 32·5	+ 31·8
August . .	...	+ 30·2	+ 27·3	+ 34·1
September . .	+ 29·1	+ 17·1	+ 14 9	...
October . .	− 1·1	− 8·5	− 6·2	...
November . .	− 11·6	− 23·4	− 23·6	...
December . .	− 20·6	− 30·8	− 27·2	...

CONTINUOUS PERIODS OF TEMPERATURE UNDER − 40°.

Years.	Dates.				
	January.	February.	March.	November.	December.
1894 .	11 to 12	3 to 7	5 to 15	14 to 15	8 to 10
	14 15	11 19	17 19	...	17 18
	27 29	23 24	25 26	...	30 1*
1895 .	14 18	9 10	19 23	20 23	7 8
	23 26	13 16	26 28	...	...
	...	18 22	...	...	...
1896 .	29† 18	4 9	4 5	...	...
	...	11 20	...	...	...

* January. † December.

THE MEAN TEMPERATURE OF THE TWENTY-FOUR HOURS FOR THESE PERIODS.

Years.	January.	February.	March.	November.	December.
	°	°	°	°	°
1894 .	− 36·8	− 48·5	− 47·9	...	− 40·7
	− 39·1	− 43·4	− 45·8	− 42·3	− 37·3
	− 40·5	− 38·6	− 40·2	...	− 42·7
1895 .	− 41·1	− 41·4	− 39·8	...	...
	− 46·3	− 43·1	− 37·7	− 41·1	− 39·5
	...	− 42·2	...	...	...
1896 .	− 45·8	− 41·1	− 35·7	...	...
	...	− 43·2	...	...	...

THE END.

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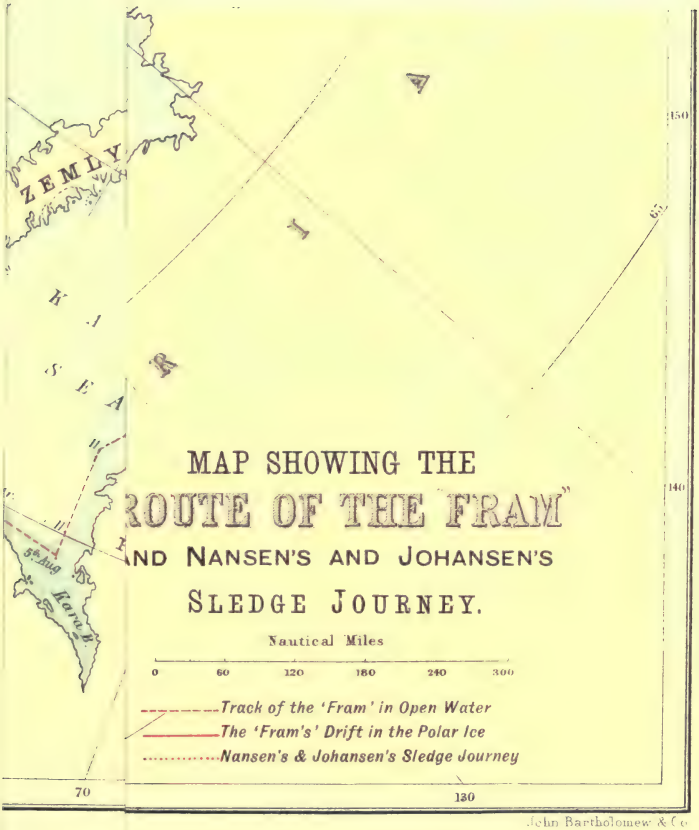

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